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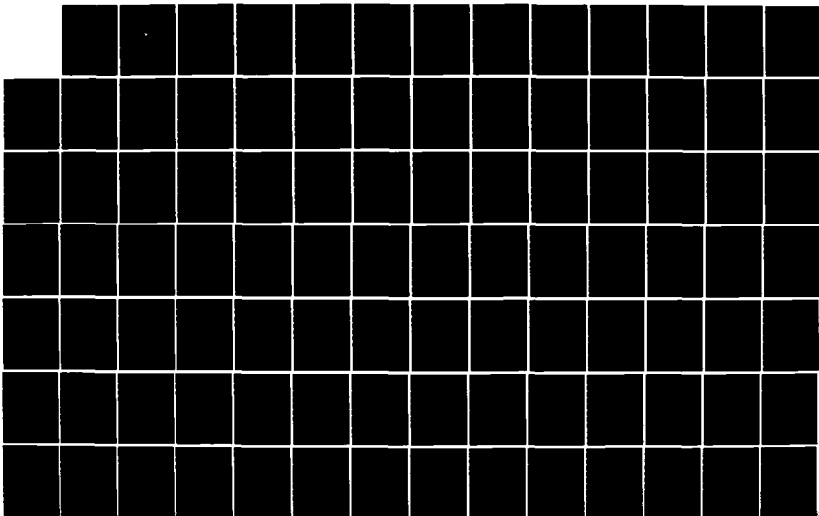
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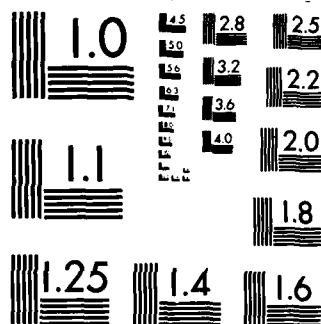
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WARRANTIES IN DEFENSE ACQUISITION:
THE CONCEPT, THE CONTEXT, AND THE CONGRESS

by

J. E. RANNENBERG
December 1984

Thesis Advisor:

David V. Lamm

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Warranties in Defense Acquisition:
the Concept, the Context, and the Congress

by

John E. Rannenberg
Lieutenant Commander, Supply Corps, United States Navy
B.A., Ohio State University, 1973

Submitted in partial fulfillment of the
requirements for the degree of

MASTER OF SCIENCE IN MANAGEMENT


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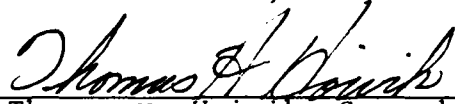
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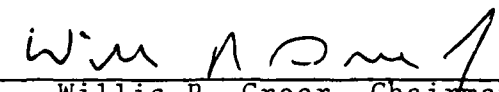
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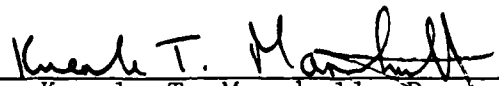

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I. INTRODUCTION

A. BACKGROUND

The use of warranties in commercial transactions has become commonplace to the point of being an implicit requirement to the marketing of virtually every product or service in the United States. In Defense acquisition, warranties have not been received with such universal acceptance, either by contractors or by the procuring agencies. The purpose of this thesis is to analyze the development of warranty issues over the last several years and to address the viability of the blanket warranty requirement imposed by recent legislation on all Defense weapon systems acquisitions.

B. FOCUS OF THE RESEARCH

The focus of the research for this thesis was two-fold. First there was a necessity to develop some understanding of the conceptual development of the warranty in American commerce not only within the private sector, but also within the Defense industry. The second direction of the research effort was toward the recent developments in legislated warranty provisions within Defense acquisition instruments. Why the issue is perceived as a problem, the Congressional intent in solving the problem, the Department of Defense actions taken in the face of Congressional guidance, and the responses of acquisition practitioners throughout the Defense Acquisition process are

all issues that have to be considered before any understanding of how to employ warranties can be derived.

C. OBJECTIVES OF THE RESEARCH

The discrete objectives of the research for this thesis, then, can be categorized as follows:

1. develop a historical context
2. develop an analysis of warranty provisions and their attendant costs and benefits
3. trace the current legislative history of warranty provisions

D. RESEARCH QUESTIONS

The primary research question was:

How did the Department of Defense and the Defense industry implement the requirement for the private sector to warrant weapon systems as provided for in P.L. 98-212 and what are the implications of this implementation?

Subsidiary research questions were:

1. What constitutes a warranty as defined by commercial law, standard commercial practice, and P.L. 98-212?
2. How did the mandated requirement for warranties on DOD weapon systems acquisitions evolve?
3. How have the various agencies within the Department of Defense interpreted and responded to the requirement for warranties?
4. What effect will the law mandating warranties have on the cost of weapon systems acquisition?

E. RESEARCH METHODOLOGY

The introduction to the topic, and the source of most of the background data regarding types of warranties and their cost implications, resulted from a comprehensive literature review.

It was only as the research unfolded that there began to develop any sort of legislative history to the warranty provision. The basic conception of the legislation was gleaned from an interview with Mr. John H. Metzger of Senator Mark Andrews' staff and from a speaking engagement before the National Contract Management Association of Mr. Alan R. Yuspeh, a member of the General Counsel, Committee on Armed Services of the United States Senate. Pentagon and Industry perceptions and implementations were garnered both through interviews with various acquisition executives and through analysis of numerous memoranda and pieces of correspondence.

F. SCOPE OF THE STUDY

The scope of the study is defined by what will not be attempted. As the current warranty legislation is a direct result of the Congressional oversight process, there is some discussion of the relationship between Congress and the Acquisition process. However, an in-depth analysis of the Congressional oversight process is neither desired nor attempted.

Warranty issues are strongly intertwined with a number of cost and pricing issues. However, to fully develop the cost models and probability concepts necessary to quantify such costs in even one case, given that one could assume the plethora of variables that would be required, is beyond the scope of this study. Even a simple model dealing with the pricing of warranties for non-reparable items contains 24 variables and 16

equations.[1] Additionally, such a level of detail is unnecessary to understand the basic cost relationships of warranties. Therefore, rather than develop discrete models, a generic overview of contractual cost behaviors, both with and without warranties, will be explored.

G. LIMITATIONS

It was only late in the research process that any sort of even basic agreement as to how to proceed was reached between Congress, DOD, and Industry. Due to the currency of the problem, the long term effect of the legislation has not yet become clear in terms of legal precedents, costs, or management requirements.

H. DEFINITIONS

For purposes of this study, the following definitions are provided [2:634, 1423]:

1. Warranty - A warranty is a statement or representation made by seller of goods, contemporaneously with and as a part of (a) contract of sale, though collateral to express object of sale, having reference to character, quality, or title of goods, and by which seller promises or undertakes to insure that certain facts are or shall be as he then represents them.

[It is] a written statement arising out of a sale to the consumer of a consumer good pursuant to which the manufacturer, distributor, or retailer undertakes to preserve or maintain the utility or performance of the consumer good or provide compensation if there is a failure in utility or performance; or in the event of any sample or model, that the whole of the goods conforms to such sample or model. [2:1423]

2. Guaranty - [A guaranty is] a collateral agreement for performance of another's undertaking. [It is] an

which small businesses are particularly susceptible, a contractor's resource constraint may not be an issue unless there is some substantial and unforeseen repair requirement. In such a case, the contractor may be hampered by the physical capacity of his plant and equipment, there could be a lack of qualified technicians to support an increased labor force, or the raw materials or subcontracted parts may be unavailable. In any event, the ability to simultaneously support a combat-level production and rework capability could suffer. [16]

While it was noted in a previous section that one of the advantages to installing a warranty is the minimized requirement for field-level technicians, there is an obvious deficiency inherent in such an organic drawdown. Not only is there the risk that, when deployed to a hostile environment, critical equipments will be out of commission lacking technicians trained in casualty maintenance, but at a more basic level, there may not even be the requisite trouble-shooting capability to identify required repairs and relate them to a specific warranty. [11:15]

Although a basic benefit to the concept of warranties is a general improvement in reliability and subsequently an increase in operational availability, whenever there is a requirement to repair a defective component, it normally must be transshipped to the contractor's facility. Such movement not only reduces the operational availability of the component, but adds to the cost of the program for both the user and the

major military public works center. [14] A lot of cast spigots was received for subsequent installation in various plumbing applications. It was soon determined that about half of the spigots leaked excessively through the casting upon installation. Because the spigots were small and relatively inexpensive, it was significantly easier for the plumber to simply take a number of spigots to each installation site, find a good one by trial and error, and discard the unusable albeit warranted castings.

Another problem for the consumer, balancing a potential advantage enjoyed by the contractor, revolves around the previously discussed requirement for pedigreed parts. Such a requirement would appear contrary to the current revitalized interest in the concept of reducing the costs of repairable and consumable parts acquired for replenishment. Under the concept of breakout, emphasis is placed on the purchase of such parts from contractors other than the prime weapon system contractor. The competition and improvement to the industrial and mobilization base fostered by such action could well be negated by a requirement to purchase repair parts for warranted equipments from the prime contractor. [15:S6-102]

A problem with great potential to disrupt the flow of resources in a wartime environment surrounds the capability of a contractor to simultaneously support both a production and a repair/rework capability. [16] In such a situation, to

equipments were even operated. Contractors were allowed excessive time periods to correct warranted deficiencies. In one case, the contractor took sixteen months to repair a generator. In some cases EPA, in a desire to expedite a repair, paid for potentially warranted repairs rather than go through the administrative process of holding the contractor accountable for timely relief. [13:1-7]

In another study, conducted in 1975, GAO examined the failure of the Department of Defense (DOD) and the General Services Administration (GSA) to obtain the full benefit of available truck warranties. [17:ii] In addition to addressing the development of more advantageous warranty terms (similar to commercial terms), aggressively pursuing billbacks, and improving management surveillance, it was evident throughout the report that there was no consistent understanding by the users regarding what components were warranted and when.

Another common problem with warranties is that the field level technician may knowingly or unwittingly invalidate warranty coverage. The basic operation and maintenance manual relating to a major complex equipment installed in a large number of Navy ships explicitly tasks the technician with attempting to repair (thus invalidating) warranted components in the name of technician training.

A more common problem concerning the enforcement of warranty claims can be illustrated by the experience at a

issue in the process of determining the suitability of a warranty for a specific acquisition: [6:46,703]

There must be some assurance that an adequate system for reporting deficiencies exists or can be established. The adequacy of a reporting system may depend upon such factors as the

1. nature and complexity of the item,
2. location and proposed use of the item,
3. storage time for the item,
4. distance of the using activity from the source of the item,
5. difficulty of establishing the existence of deficiencies; and
6. difficulty in tracing responsibility for deficiencies.

The issue of enforcing warranties was clearly documented in a recent General Accounting Office (GAO) study relating to warranties. [13:1-7] In a review of waste water treatment facilities supported by the Environmental Protection Agency (EPA), the study found the enforcement of warranties to be lacking. Because there was no formal procedure for warranty application, it was not unusual for EPA facilities to bear costs properly chargeable to contractors' warranties. Personnel were inadequately indoctrinated in the appropriate procedure to follow when a warranted equipment required maintenance. Documentation regarding which equipments had warranties in force was poorly maintained. Warranties were allowed to expire on long lead time equipment purchased in advance before those

direct economic benefit. Another layer of profit may be gleaned by the contractor when the warranty calls for pedigreed repair or maintenance support. In discussions with contractors, most claimed to be unwilling to warrant an equipment that has been repaired with off-standard components which may affect performance. The similar practice of requiring expensive periodic preventive maintenance checks by the dealer is common with automobile warranties.

Another potential benefit is that the Government learns to rely on the technical capability and experience of the contractor. [5:358] When the warranty expires, that expertise can become very expensive, but because the Government may not have built in its own technical capability, the opportunity cost to forego contractor support may be excessive.

A corollary to the reliance on the contractor for specific follow-on support is the general reliance on the contractor as a capable and responsible entity. This provides an edge for that contractor in future negotiations. Emphasis frequently is placed on the proven provider as compared to the cheaper yet technologically similar newcomer.

4. Difficulties in Warranty Management for the Buyer

While warranties can be a useful adjunct to the acquisition, operation, and maintenance of an equipment, they are certainly not a panacea without any problems.

The administration and enforcement of warranty provisions is addressed in the Federal Acquisition Regulation (FAR) as an

The last of the consumer's savings is not readily realized, but is significant, nevertheless. One interviewee suggested that as a result of the contractor bearing the cost of any repair or rework effort directly out of corporate profits, such a process is going to be made as cost-effective as possible. The costs to the Government, when at a later date maintenance costs are supported or fully borne, will then be minimized.

3. Advantages to the Seller

One of the distinct advantages to maintaining a warranty for the seller is the limitation of liability regarding some combination of covered failures or defects, time period, and incidental costs incurred due to a failure. [8:8-10]

There are other benefits, as well. Initially there is the aspect of "good will" involved when a company stands behind a product in terms of its reliability. The customer is also satisfied because of the apparent savings (which may or may not be related to any actual savings) in the maintenance of the equipment. All of this leads to an enhanced corporate or product image.

A warranty program provides a huge cadre of quality inspectors with no vested interest in the future of the company and no fear of being outspoken regarding design or production defects - the customers. [12]

Corporate profits are tied directly to the minimization of any warranty related costs, providing a very definite and

during the introductory phase of the equipment life and can then provide package training for technicians who are already familiar with the equipment from on-the-job observation and operation.

While there might be savings in school seat requirements and the development costs of a new technical curriculum, there are concomitant direct costs savings in terms of technician manning, particularly for shipboard Intermediate Maintenance Activities. [11:9] Manning aboard all ships is a constant problem. There is not enough space on the ship to put all the necessary talent, and the necessary talent is not always available to go to sea. This is particularly true in the case of technicians experienced in high-technology equipments who either move into civilian industry or are retained in the service by detailing them ashore. By supporting maintenance tasks with a contractor effort through a warranty commitment, scarce shipboard billets and man-hours are freed to work other priorities.

Another cost avoided in the maintenance world is in the equipments required to perform necessary trouble-shooting and maintenance. It is not uncommon for high-tech test equipment to be, of itself, scarce, expensive, and hard to maintain or replace. All the costs associated with the establishment and maintenance of an appropriate field, intermediate, or depot level repair capability are avoided as long as it remains the contractor's responsibility.

inspections or bench testing after so many operating hours. The cost of planned maintenance actions is always less than those associated with casualty maintenance. Planned maintenance may be "gratis" like the thousand-mile check-up, or it may be an express conditional cost of continued warranty coverage. In either event, it simply incorporates some discipline into the idea of maintaining the contractor's attention.

The final benefit comes to the Government in a variety of costs avoided. The prime cost avoided in terms of material support is in inventory costs. [10:8] Inventory volumes at the organizational level will not be radically affected because of the requirement to maintain insurance spares to support preventive and corrective maintenance actions. However, at the wholesale level there will be considerable savings. Because the contractor will provide the piece-parts support for intermediate and depot-level maintenance. Those are parts that will not have to be purchased, transported, stored, preserved, maintained on stock records, inventoried and reinventoried, guarded, replaced when damaged or lost, issued, and accounted for. [10:9]

Another savings comes in the training of technicians to troubleshoot and maintain newly introduced and technologically unique equipments. [10:10] Rather than having to provide potentially expensive career-pipeline training for new technicians, the Government can rely on the contractor for maintenance

Another activity which will receive increased contractor attention applies to the review of contract specifications for design and performance as provided by the Government. When it is a legal requirement for the contractor to warrant performance at the level called for in the applicable standards, there will be incentive provided for the contractor to review the technical and performance requirements with a keener eye. [9:2]

Another positive aspect of the inclusion of warranties is the potential for increased availability of a weapon system simply because the interest of both the Government and the contractor will be maintained in the equipments operability. [9:2]

Configuration management could also be enhanced, depending upon the nature of the warranty provisions. [5:356] There will be incentive for each equipment to begin the coverage period in as good a shape as possible, there will be incentive for the contractor to keep every equipment as up-to-date as possible, and there will be incentive to track the individual maintenance history of each component to verify causes of failures. There will also be a desire on the part of the contractor to keep each component in a standardized configuration because it will minimize any contractor level trouble-shooting or repair expenses if every component is identical. In addition to keeping track of each component and providing configuration management, a warrantor may find it cost efficient to perform some periodic maintenance checks, such as annual

clauses is the strictly financial one. The warranty can provide for the repair or replacement of defective items or components during the period of coverage. This can be either prorated through the usable life remaining in the product, as is typically the case in the enforcement of automobile tire warranties, or it may be simply a "free" replacement or repair. While there is always a cost associated with a warranty, in the case where the buyer "picks up" a standard commercial warranty at no nominal additional cost, the repair or replacement is virtually free. [6:46.703d] Another financial benefit which, although passed up by the Government through its policy of "self-insurance" is the liability for follow-on or "consequential" damages resulting from a warranted failure. [7:4-H-95] Frequently, limited commercial warranties exclude indemnity for consequential damages, but it remains a thorny legal issue nonetheless. [8:E-7]

There are a number of other benefits which accrue to the Defense customer when warranties are applied. In the case of military equipments, probably the most significant benefit is the long term retention of the contractor's interest in the equipments' life cycle cost. Rather than remaining ignorant to the condition, reliability, maintainability, and field performance, the seller will remain in contact with his equipment for the period a warranty is in place, taking the opportunity provided to evaluate, document, and improve its current or future performance. [5:355]

7. if the goods are sold for human consumption, it is implied that they are fit therefore.

C. EXPRESS WARRANTIES

1. General Concept

In a standard commercial warranty the seller warrants that seller-designed systems, accessories, equipment, and parts shall be free from defects in design, material, and workmanship and shall conform to the detailed specification requirements over some specified period of time. [2:1423]

Such a simplistic arrangement is seldom utilized in weapon system warranties. For reasons which will be addressed, there are numerous variant weapon system warranties, some which mirror standard commercial practice and some which do not.

2. Advantages to the Buyer

The advantages to the customer of even a simple warranty are that there is some indemnity against premature failure or latent defect, and also that both the seller's and buyer's attention to product reliability is maintained, thus highlighting improving availability and operability. [5:355] The seller is made to "stand behind his product." Although most manufacturers see the marketing necessity to maintaining a good reputation, in our increasingly litigious society, an express warranty makes the issue less an act of faith and more a legal requirement.

There are other benefits, however. The greatest apparent benefit attending the inclusion of warranties in contractual

II. THE WARRANTY

A. INTRODUCTION

Understanding the nature of warranties is integral to the development of the current historic perspective of warranties. Implied warranties will be introduced and express warranties will be presented in terms of a general concept, basic management considerations for both the buyer and seller, and basic cost analysis considerations for the buyer and seller.

B. IMPLIED WARRANTIES

Implied warranties are "read into" contracts by common law, even if the specific language is not addressed. [4:40] Typical of classical implied warranties are: [4:41-45]

1. that the seller has title to the goods or will have when title to the property is to pass,
2. that the buyer shall have the goods free from all claims of other persons,
3. that the goods shall be free from encumbrances except those specifically stated,
4. where there is a sale by description or sample, the goods shall comply with the description or the sample, and if sale is by both, the goods must comply with both and be of equal quality,
5. where the buyer makes known the particular purpose for which the goods are to be used and relies on the seller's skill and judgement, a warranty that they are reasonably fit for such purpose is implied,
6. where the goods are bought by description from the seller who deals in goods of that description, there is an implied warranty that the goods shall be of merchantable quality, and

developments of warranties. Chapter V summarizes the data presented, and the final chapter offers some conclusions and recommendations for further analysis.

undertaking or promise that is collateral to primary or principal obligation and that binds the guarantor in the event of nonperformance by the principal obligor. [It is] an undertaking by one person to be answerable for ... the due performance of some contract or duty, by another person, who himself remains liable to pay or perform the same. [2:634]

'Guaranty' and 'warranty' are derived from the same root, and are in fact etymologically the same word, the 'g' of the Norman French being interchangeable with the English 'w'. They are often used colloquially and in commercial transactions as having the same signification, as where a piece of machinery or the produce of an estate is 'guarantied' for a term of years, 'warranted' being the more appropriate term in such a case. [2:635]

On the part of the warrantor, and the contract is void unless it is strictly and literally performed, while a guaranty is a promise, entirely collateral to the original contract, and not imposing any primary liability on the guarantor, but binding him to be answerable for the failure or fault of another. [1:635]

[This distinction notwithstanding, for the purposes of this study the terms "warranty" and "guaranty" will be assumed interchangeable unless otherwise specified.]

3. Weapon System - Although not codified until late in the process of developing this study, the term "weapon system" will be defined as it appears in the FY85 Defense Authorization Act. Thus 'weapon system' means items that can be used directly by the armed forces to carry out combat missions and that cost more than \$100,000 or for which the eventual total procurement cost is more than \$10,000,000. Such term does not include commercial items sold in substantial quantities to the general public. [3:2403]

I. ORGANIZATION OF THE STUDY

Chapter II describes the basic concept and nature of some basic commercial and Defense warranties including cost considerations. Chapter III introduces several contextual concepts for consideration in order to understand the recent legislative history. Chapter IV outlines the current legislative

contractor. [1:21] The added cost becomes even more frustrating when, upon receipt of the alleged defective equipment at the contractor's plant, there is found to be no deficiency. [11:15]

5. Difficulties in Warranty Administration for the Seller

There are drawbacks to warranties for the seller as well. The contractor is faced with two basic categories of difficulties imposed by warranties. The first is strict cost assumption, and it is the easier of the two to quantify and negotiate. As an implicit requirement of the warranty, the contractor will have to maintain a stringent quality assurance program which may involve a broader set of expenditures than would be required without a warranty.

The greater of the two problems for the contractor, and obviously more difficult to put a dollar figure on, is the concept of risk assumption. In a direct sense, there is a risk to corporate profits when a component is warranted. However, there are other subtle risks with which the contractor is faced. For instance, the contractor is not only gambling that there will be a continuing supply of technical expertise and plant capacity to support simultaneous production and repair, but also is betting that the opportunity costs of maintaining such a capability will not eclipse any potential profit lost because of an inability to shift production assets to a new product line. [11:17]

Another facet of this risk beginning to receive attention is in the management of subcontractors by the prime contractor including increasingly more complex indemnification clauses in lower tier contracts. While warranty costs could become the shared responsibility of the prime and any subcontractors, implicit in the warranty is that any subcontractors will continue to remain in business and support the product.

D. BASIC WARRANTY COST ANALYSIS CONSIDERATIONS

While it is recognized that there are philosophical and legal implications to the inclusion of express warranties in acquisition instruments, there are also complex cost implications.

A comprehensive Government warranty cost analysis model reviewed by the researcher is one developed by ARINC Inc. for the Rome Air Development Center. [17] It is the opinion of the researcher that, while cost models are useful for some aspects of cost analysis, most embody two basic generic deficiencies. The primary problem is that they are algorithmic in nature and, in order to be useful, must be utilized in a mathematic environment where every variable in the model requires the assignment of a discrete value. Such models can become cumbersome and confusing for the average consumer. The other problem is that any such model is incapable of providing a side-by-side comparison of costs (with and without a warranty) without a significant amount of manipulation.

		WITH		W/O	
		K	G	K	G
A.	NUMBER OF UNITS PURCHASED				
1.	OPERATIONAL UNITS	/	+	/	-
2.	MINIMUM NUMBER OF SPARES				
a.	INITIAL SPARES	+	-	-	+
b.	REPLENISHMENT SPARES	+	-	-	+
B.	PURCHASE PRICE PER UNIT	/	+	/	+
C.	NUMBER OF OPERATIONAL UNITS				
1.	OPERATING HOURS PER MONTH PER UNIT	/	+	/	-
2.	EQUIPMENT LIFETIME	/	+	/	-
3.	WARRANTY PERIOD				
a.	GRACE PERIOD	-	+	0	0
b.	LENGTH OF COVERAGE (YEARS OR OPERATING HOURS)	+	+	/	/
c.	START TIME FOR TIME-PHASED INTRODUCTIONS	+	-	/	/
D.	COST OF MODIFICATION	+	-	0	+
E.	PREVENTIVE MAINTENANCE COST	+	+	0	-
F.	DIRECT COST PER FAILURE				
1.	AVERAGE LABOR HOURS PER FAILURE	+	-	0	+
2.	AVERAGE LABOR RATE PER FAILURE	-	+	+	+
3.	AVERAGE SHIPPING COSTS PER FAILURE	+	+	0	-
4.	AVERAGE MATERIAL COSTS PER FAILURE	+	-	0	+
G.	MAINTENANCE SUPPORT COSTS				
1.	INITIAL SUPPORT COSTS				
a.	TEST EQUIPMENT	+	-	-	+
b.	TRAINING	+	+	?	?
c.	DATA	/	-	/	+
2.	RECURRING SUPPORT COSTS				
a.	MAINTENANCE HISTORY RECORDS	+	+	-	-
H.	RISK FACTOR				
1.	INCREMENTAL RISK BURDEN				
a.	TECHNOLOGICAL QUALITY	+	-	-	+
b.	CONTINUING DESIRE / CAPABILITY TO SUPPORT MAINTENANCE	+	0	-	+
2.	CONTRACTOR FEE	/	+	/	-
I.	INVENTORY MANAGEMENT COSTS	+	-	-	+
J.	OTHER				
1.	WARRANTY ADMINISTRATION COSTS				
a.	TESTING	+	+	-	-
b.	COVERAGE RECORDS	+	+	-	-
c.	LEGAL PROCEEDINGS	+	+	-	-
d.	COST OF OPERATIONAL TIME LOST	/	+	/	-
e.	REPORTING SYSTEM	+	+	-	-
f.	TRAINING RE: WARRANTY SYSTEMS	+	+	-	-
2.	WARRANTY PRICE	/	+	/	0
3.	CONFIGURATION CONTROL	+	+	0	-
4.	LOSS OF SPARES "BREAK-OUT" CAPABILITY	-	+	+	-
5.	LOSS OF ORGANIC MAINTENANCE CAPABILITY	/	+	/	-
6.	PROGRAM COSTS	+	+	0	0

= NO CHANGE 0 NO COST / NOT APPLICABLE
 + HIGHER COST - LOWER COST ? INDETERMINATE

Figure 1. Simplified Warranty Cost Analysis

Figure 1 provides a simplified accounting of the basic costs occurring in warranty analysis along with a legend comparing cost behaviors for both the Government ("G") and the contractor ("K") where there is a warranty in place ("WITH") and where there is not ("W/O").

The first of the cost elements is the number of units purchased. Components of this number are the number of operational units required, but also the number of direct replacement spares that are expected to be required to maintain some specific level of equipment availability. The spares requirement consists of some basic minimum level requirement (insurance spares) plus the level of spares expected to be required over the life of the equipment (replenishment spares). If the responsibility for providing spares coverage becomes a responsibility of the contractor due to a warranty provision, the costs of providing the spares will also shift.

When analyzing purchase price, an assumption in this model is that the costs of warranty provisions are not reflected as a direct element of the purchase price. As a practical matter, there is no assurance, per se, that some cost of the warranty won't be applied to the purchase price. This is particularly true in a cost reimbursement type contract. While validating other non-related cost elements will help to avoid padding to pay for a warranty, finding such increases are extremely difficult. [18]

The next component of cost comparison is associated with the number of operational units. There are two assumptions implicit within this segment. First, that there is a definitive cost applicable to owning and operating a piece of equipment over some finite period and, second, that a warranty provision will extend this finite operational life of an equipment. Considering these assumptions, then, when a warranty is applied, operating costs will rise concomitant with operational availability. The length of the warranty coverage period itself will modify these costs.

Direct costs of modification will be greater for the party responsible for the bulk of the reliability improvements. [10:5] One potential twist to the issue of modifications which needs to be recognized, however, is that in the situation where there are dual sources, the primary source may be able to accomplish a change with little or no cost impact, while a competitor secondary source established through some provision for data rights may experience (and claim) greater costs in the implementation of the same change. [19]

That situation aside, the trading of cost responsibilities in the case of modifications will still not necessarily be linear. A contractor will tend to apply most attention to the front end of the warranty, where there is some assurance of payback before the warranty period expires. [5:359] On the other hand, where the owner acts as a self-warrantor, the researcher has found that the inclination would be to apply

modification and improvement efforts and costs uniformly to maintain maximum reliability over the life of the equipment rather than over the life of the warranty. As a sidelight, the costs of modifications to equipments normally increase with age. As equipments get older, they tend to be relatively less capable and therefore need more "help" to remain competitive in their current technological environment. The net result is that there will be some difference with a warranty, but its definition is not as clear as in the case of some other costs. [10:5]

It appears to the researcher that the cost of preventive maintenance changes with a warranty. A precondition of many warranties is that the unit in question must remain sealed to avoid warranty invalidation, or at least that maintenance procedures are strictly controlled. One reason for this requirement is to avoid any consequential internal damage by a heavy-handed, untrained, or inexperienced technician. The implication is that preventive maintenance will be minimized or at least relatively simplistic in order to avoid compromising the integrity of the warranted equipment. In the case of an unwarranted equipment, a full preventive maintenance effort will be undertaken in order to maximize reliability and operational availability. For the Navy, this is a sizable centralized data and material management system with far-ranging cost implications. Again, the reverse condition is not true for the

contractor. Where the contractor is not supporting a warranty, the preventive maintenance costs are essentially zero. These costs would be limited to whatever preservation effort must be applied in the period between manufacture and delivery to maintain the full operational capability of the equipment and the level of specification called for in the contract. However, where there is a full warranty in place, it may be desirable to have some capacity for the contractor to provide routine inspection and preventive maintenance checks. Such a situation would be beneficial for the Government, obviously, but it may be beneficial for the contractor as well. A routine inspection program could minimize false pulls (fully operational equipments returned in error for corrective maintenance) or could reveal weaknesses which, when corrected, could potentially improve performance when some measure of reliability is being warranted, in turn increasing profits. So, while there is certainly a variance in costs for the Government when a warranty is in place, there is only a probability of cost increases for the contractor which would be contingent upon his planned level of effort.

A cost which would seem constant throughout the analysis, but which in fact varies greatly from one situation to the next, is associated with the direct costs per equipment failure. There are four basic components commonly attributed to direct failure cost: [1:17]

1. average labor hours per failure,
2. average labor rate per failure,
3. average shipping costs per failure, and
4. average material costs per failure.

Without a warranty, the contractor will incur virtually no labor hours, unless one counts any engineering effort spent "gratuitously" analyzing the failure in terms of a potential modification. All the costs for repair will be expended by the Government. There are some variations when a warranty is in place, however. There will be a shift in maintenance labor hours from the Government to the contractor. The shift will not be total because there is still some customer time invested at the organic level in trouble-shooting to validate the failure and preparing the equipment for contractor availability. Commercial labor costs are relatively fluid when compared to the Government's labor rates which remain generally constant as a function of both wage rates and staffing in the military and civilian federal service. [20] However, it appears to the researcher that the average labor rate for a contractor's warranty technicians should go down. No longer is the failure an isolated case being evaluated by a sophisticated engineering team. Rather, although the contractor would argue that top talent is still required, an efficient contractor would hire a squad of less highly trained technicians to effect repairs with a minimum impact on the production line or the R&D staff. [18] The average shipping cost per failure, defined as any cost directly

involved in either packing and transporting the affected unit to the maintenance facility or in transporting the appropriate maintenance capability to the site of the failure, will be higher whenever such transportation takes place over a greater distance to some remote location. While there is a potential that a contractor's maintenance facility could be closer than the Government's, in the vast majority of cases (owing to deployed equipments and organizational level maintenance capabilities) the Government maintenance operation will be closer.

The last component of direct failure costs is material costs. Logic dictates that the total material costs will be greater for the party charged with administering the warranty and accomplishing any required repairs. It is the researcher's experience that average material costs are dependent upon the predictive capacity and accuracy of applicable inventory systems and therefore it would be difficult to predict a corresponding discrete cost value. However, even where the repair is the responsibility of the other party, some level of inventory investment will be required as insurance items with all the concomitant inventory carrying costs, thus developing a minimum average material cost in either situation.

The next category of investment is in costs defined as "maintenance support". The concept of initial maintenance support costs contains three categories, any one of which severely compounds the complexity of the cost analysis. While

the requirement for test equipment seems benign, with the greater cost going to the party responsible for maintenance, there is still the added requirement for some level of support for a contractor's engineering or R&D staff, and there remains some requirement for some organic emergent maintenance capability for deployed customers. Exactly at what level such costs are appropriately charged to a warranty cost breakdown would certainly be open to negotiation. The costs associated with training maintenance personnel are as difficult to define. It again becomes a question of where to draw the line in allocating costs, and there is no clear definition.

Recurring maintenance support costs, in particular the documentation of maintenance history, becomes an issue as a greater number of complex equipments are warranted and as the costs associated with converting manual contractor or Government maintenance records to integrated automated data files increase. For both the Government and the contractor, implementation of a warranty and increasing the number of equipments which must be controlled and administered increases the magnitude of these costs.

Quantifying the desire on the part of either the Government or a contractor to maintain some level of technological quality, while difficult, is attendant with the analysis of any warranty which ties itself to reliability and is therefore something with which one must deal. There should be more emphasis placed on the quality of the product by the entity responsible

for warranting the performance. As difficult as it may be to measure the cost of this continuing interest, it is even more difficult to measure the potential for maintaining a desire and capability to support a continuing maintenance program. The contractor is gambling the use of his facilities and productivity against the probability of a more lucrative project that would compete for the same capacity.

An immense cost that threads itself throughout discussion of any process involving material stored in any fashion for some future use is that of inventory management. [31:10] Costs here could be broken down into either personnel/program management costs or hardware/facilities costs, and could be treated as either overhead costs or as direct costs. Regardless of their treatment, it should be clear that they will depend on the magnitude of the line items treated as a percentage increase in already existing capacity and capability. There is a significant difference between adding 200 line items to the company with an in-house inventory of 20,000 line items as compared to the company managing 2,000 line items.

The last category of warranty costs is the insipid "other" category (not necessarily trivial, just "other"). First in this list are the kinds of warranty administration costs not treated elsewhere:

- testing by both the contractor and the Government to determine warranty compliance
- various records keeping requirements

- the inevitable increase in legal costs associated with manipulating warranty provisions and enforcing warranty claims
- the costs incurred by the operational entity resulting from sending an equipment away for warranty work that nominally would be repaired at the organizational level much more quickly
- training in warranty administration at all levels within the Government and many different levels within a contractor's operation.

These categories all represent definable costs which lead directly from the requirement to administer a wider variety and larger number of warranty provisions.

In addition, as discussed earlier, the firm fixed price of the warranty provision itself needs an accounting classification, and "other" is the easiest and most logical to employ.

Configuration control, not the maintenance aspect, but rather tracking the exact technological configuration of each unit, could be considered by some as a maintenance support cost. However, the concept of maintaining a stable and consistent population of equipments is so critical to the proper application of any planned maintenance/reliability warranty program that it is an issue which should be treated separately.

The next two costs are "loss" costs from generating an inability to support the most efficient management systems. On the one hand there could be spare parts purchasing inefficiencies when pedigreed warranty requirements preclude break-out. Secondly, there may develop atrophy of any organic and

combat mission oriented maintenance capability. Both are almost impossible to quantify, but should at least be recognized as real costs.

The last of the "other" costs are program costs, again difficult to allocate to a specific project perhaps, but extremely important in recognizing the overall expense involved in managing warranties within the Department of Defense. Probably the best instance of this kind of expense is the Air Force Product Performance Assurance Center at Wright-Patterson Air Force Base. Such a concept is a sizeable undertaking affecting the performance of contracts and contractors within DOD and requiring some concept of allocation.

E. BASIC WARRANTY PROVISIONS

1. Standard Commercial Type Warranty

Figure 2 provides a copy of a typical express commercial machinery warranty. This particular warranty provides a statement of:

1. the products to which the warranty does and does not apply,
2. the type of defect covered,
3. the period of coverage,
4. the remedy available to the customer in the event of a failure or defect, and
5. limitations to the seller's potential liability.

While there is an unlimited variety of such express warranty clauses and provisions, they all provide the same

Caterpillar Warranty

EARTHMOVING, CONSTRUCTION AND MATERIALS HANDLING MACHINERY

Caterpillar warrants new earthmoving, construction and materials handling machinery (other than lift trucks) and attachments thereto sold by it to be free from defects in material and workmanship subject to the following provisions. During the first six months after date of delivery of the product to the initial user, a new or repaired part, whichever Caterpillar elects, along with the labor for installation of such new or repaired part, will be provided in place of any parts which are found upon its inspection to be defective in material or workmanship. Such parts and labor will be provided without charge to the user during normal working hours at a place of business of a Caterpillar dealer or other establishment authorized by Caterpillar, but this warranty does not include any costs for transporting the product to such place of business or establishment.

Replacement parts provided under the terms of this warranty are warranted for the remainder of the warranty period applicable to the product in which installed as if such parts were original components of that product. No warranty is made with respect to items supplied by

Caterpillar on special order nor with respect to tires made by others when such tires are warranted by their respective makers.

This warranty does not apply to Caterpillar brand bias ply and treadless tires, ground engaging tools or Caterpillar brand batteries — to all of which different warranties apply.

This warranty is expressly in lieu of any other warranties, express or implied, including any warranty of merchantability or fitness for a particular purpose. Remedies under this warranty are expressly limited to the provision and installation of parts, as specified above, and any claims for other loss or damages of any type (including without limitation loss from failure of the product to operate for any period of time, other economic or moral loss, or direct, immediate, special, indirect or consequential damage) are expressly excluded.

As used in this warranty, the term "Caterpillar" means Caterpillar Tractor Co. or one of its subsidiaries, whichever last sold the product involved.

Figure 2

Services Committee, in his remarks before the Senate Budget Committee in March of 1984. [31:54] His basic feeling that Congress considers Defense issues primarily in terms of near-term affordability is clearly stated in five elements which he considers crucial to the regaining of a credible management by Congress: [31:56]

1. Assess the basic relationship between Congress and the Executive Branch. The American people are not paying for 535 "Chief Executive Officers".
2. Assess the increasing involvement of Congress in the establishment of Defense and Foreign policy. Bipartisan commissions were effective in resolving the issue of Social Security, as an example, and should be established to minimize the protracted debate over Foreign and Defense policy.
3. Consider reforms to eliminate unnecessary layering and overlapping jurisdictions.
4. Develop a greater sense of leadership and appreciation for America's role in the world striking a balance between the instant desires of constituents and the broader requirements of global political leadership.
5. Rebuild a bi-partisan consensus on Defense and Foreign policy. The results of bitter disagreement over Defense policy are detrimental not only in the sense of physical production, but also as a signal to our allies and opponents.

To expect immediate action on the part of the Congress to dramatically alter the perception of and solution to Defense issues is unrealistic for several reasons in addition to Senator Tower's concerns. With the great percentage of Congress comprising freshman members, there is a real (or at least political) imperative to establish a "name". To be able to take credit with one's constituents for the resolution of some "thorny" issue is always a consideration.

risk choice behavior. The precursor to the concept that market forces alone are insufficient to enforce risk-minimization behavior among producers and providers of consumer products was Upton Sinclair. His book, The Jungle, was a purposely disgusting expose of unhealthful food processing procedures which led directly to the passage of the Pure Food and Drug Act. [28]

A recent risk reduction mechanism developed through the legislative process is the Occupational Health and Safety Administration (OSHA). OSHA was born out of a desire to regulate job risks and other associated hazards under the assumption that risk assessment by workers was unsatisfactory or imprecise, that there was inadequate insurance available to workers to indemnify them in an environment of rapidly escalating legal and medical expenses, and that the role of the Government should be altruistic in shielding its citizens from danger. [29:6]

There were, and continue to be, a number of basic problems with the concept of OSHA as a risk regulator. The basic difficulty is the underlying assumption that society should be risk-free. [29:3] Also, there is the implicit concept within the OSHA regulatory structure that risks are generated, not by the choice of knowledgeable individuals, but rather are generated by mistaken technological decisions made independent of any cost considerations. [29:3] A corollary to this concept of ignoring the costs and benefits of mandated changes is the

attempt to alter working conditions in the marketplace while superseding existing market mechanisms for their establishment and maintenance.

D. CONGRESSIONAL OVERSIGHT

In order to understand the essential nature of the warranty issue in attracting the attention of Congress, the general state of Congressional oversight of the Defense acquisition process is presented.

Not too many years ago, the oversight of Congress manifested itself on the Defense Department in the "HASC" and "SASC", the House and Senate Armed Services Committees. With the reformulation of the budget process came more emphasis from the Appropriations Committees and the Finance Committees. As individual Congressional persona developed their own power bases, other committees entered the picture, for instance the House Government Operations Committee, Judiciary Committee, and Ways and Means, as well as the Senate Budget and Small Business Committees. There were also a number of Ad Hoc groups, as well, such as the Military Reform Caucus.

In the Spring of 1984, there were over 185 different pieces of pending legislation which directly or indirectly impacted the Defense procurement process. [30] While some of these bills represented overlapping proposals, the message is still clear...there is no dearth of Congressional interest.

The results of this proliferation were decried most articulately by Senator John Tower, Chairman of the Senate Armed

The legal profession, historically concerned with providing appropriate risk averse guidance to clients, has found itself faced with an increasing magnitude of legal issues that effect the liability of companies previously considered "safe" from such litigation. [8:H-2]

Historically, a contractor's legal liability was limited by a requirement to prove negligence in producing a defective or dangerous product. However,

modern product liability law has expanded significantly the liability of product manufacturers. Restatement (Second) of Torts S 402A (1965) establishes "strict liability" in tort for the sale of a product in a "defective condition unreasonably dangerous to the user or consumer." [8:H-1]

"Agent Orange", asbestos, and radiation injury litigation abound based on renewed notions of latency. [8:H-2] Many years after design and production, occasionally even after the Government has sold the "defective" product as surplus, there are allegations of defects causing injury. Precedence has provided that in a variety of cases of service-related injuries, even where a defective product may have resulted from a directed design, the liability of the Government is limited by it's sovereign nature and that the contractor's liability is not so limited. [27]

C. LEGISLATED RISK MANAGEMENT

The concept of regulated risk management is not new. It was not until the turn of the last century, however, that the affluence and complexity of American society raised itself to the point of permitting widespread pre-emption of individual

every American product or service. The recognition of this aspect of marketing management, has elevated "risk management" to the level of a credible operant business management philosophy.

The concept of corporate property and liability insurance coverage has changed from underwriting specific hazards to "all risk" coverages with exclusion clauses in the case of war, nuclear disaster, and so. There is now even "business interruption" insurance. In the event of some catastrophic event precluding the continuation of normal business activities, business interruption insurance serves to: 1) maintain the supply of products or services, 2) pay to retain key people, 3) satisfy creditors, and 4) in general accept much of the basic "risk of doing business." [26:54] Liability insurance has become a major expense for almost any commercial undertaking. Doctors and dentists have enormous liability coverages as do transportation companies and their equipment suppliers. A relatively new twist to liability coverage, however, is "retro-active liability insurance". This coverage will raise the limits of previous coverage, bringing them up to current umbrella limits. [26:57] Another recent consideration is the pooling of liability exposures, a technique frequently used in Europe and only recently gaining acceptance in America. Generally a consideration for Government entities, pooling increases the exposure base so that losses are more predictable and the uncertainty of risk can be reduced. [26:58]

effect on life cycle costs, Pratt and Whitney beat out their competition, General Electric, to take the award.

The inclusion of warranty provisions has become so common that it is an accepted requirement for the successful marketing of almost any product or service. Although the commercial application of warranties as a liability limitation device has been relatively well understood, it took Lee Iacocca, Chief Executive Officer at the ailing Chrysler Corporation, to see the warranty as something even greater. As a part of his recovery program, Chrysler instituted the Five Year/Fifty Thousand Mile Warranty. This critical part of Iacocca's high stakes gamble was described to the researcher by a former Chrysler employee familiar with the decision. Combined with Iacocca's guaranteed loan and a massive advertising campaign based on his personal charismatic appeal, the new warranty program served to do two things. First, and most fortunate for the American automobile industry, it sold Chryslers and saved the company. Iacocca recognized two salient characteristics about an automobile warranty; that the cost of honoring warranties is deferred, and that they need only be honored for the original owner. The second, and major effect of the five year warranty was that it drove the automobile industry into a warranty marketing competition. The necessity of providing a warranty, as a marketing incentive, has reached into virtually

Although not new in either commercial or defense applications, warranties were introduced in earnest into Defense procurement in the late 1960's as a fallout from their use as a marketing device by American manufacturers of commercial airframes and avionics. [5:335] The use of warranties increased, both in terms of their application to complex weapon systems acquisitions, but also as warranties appeared more frequently attached to simple commercial items purchased off the shelf.

Over the last decade there have appeared several GAO studies regarding warranties, primarily concerning commercial-type vehicles. While there was concern regarding warranty administration by the Department of Energy in 1979, the policy considerations of the subject were not the focus of any real attention until the acquisition of the Alternate Fighter Jet Engine acquisition which began in 1980. [25:A-1]

As a pre-emptive competitive strategy described by one interviewee, United Technologies, parent of Pratt and Whitney Aircraft, one of the offerors in the engine competition, offered a very attractive warranty as a portion of their proposal. Although previously warranties were not considered of paramount importance in the source selection process, the visibility of the issue was raised primarily through the efforts of Senator Mark Andrews of North Dakota. The result was that with the increased emphasis on warranties and their perceived

watchdogs to delineate and protect the rights of individuals in the marketplace.

A by-product of the increased awareness of the producers' and consumers' various rights and responsibilities has been a heightened interest in the warranty as a legal instrument for clearly establishing and enforcing quality standards.

As American business practices have moved increasingly over the last two decades toward litigation to resolve buyer/seller conflict, so has the perception that implied warranties are insufficient to properly define and limit the rights and responsibilities attending a sale. [11:2] The major difference (excepting the variance in prices) between the Sears mail-order catalog of 1893 and the Sears catalog of 1983 is that the latter contains six pages of fine-print express warranties covering a wide range of consumer goods for sale. [24:647-652] In addition, there is a provision to have the company mail a copy of any applicable warranties for review by the consumer prior to the sale. Almost without exception, these warranties provide for some limited period of time during which Sears or the appropriate manufacturer will correct any defects in workmanship or materials free of charge.

This same type of warranty coverage is available today for almost any consumer good purchased in America. The result is that the warranty has seen a widespread increase in popularity as a term insurance policy on the things we buy offering indemnification against premature failures.

III. THE CONTEXT OF WARRANTY LEGISLATION

A. INTRODUCTION

There are some historic and economic contextual considerations which put the impact of the warranty legislation into perspective. The first of the background considerations is the historic evolution of the warranty, followed by a brief review of another attempt at regulated risk management - the Occupational Safety and Health Administration (OSHA). This will precede a brief description of the development of the current Congressional oversight process. The final context considered is the economic background within the Defense Industry and the Defense acquisition system operate.

B. THE CHRONOLOGY

In 1965, Ralph Nader authored a best-selling book entitled Unsafe At Any Speed: The Designed-in Dangers of the American Automobile, chronicling glaring deficiencies in the design and production of a sequence of American compact cars, the Chevrolet Corvair. [23] In doing so, he reversed the old "Caveat Emptor" ("buyer beware") adage and introduced Americans to the philosophy that manufacturers have a moral and legal responsibility to produce a product which meets the explicit and implicit expectations of the consumer market.

Nader became a media hero, and his efforts spawned numerous "public interest action groups" acting as consumer advocate

F. SUMMARY

Although standard commercial warranties appear rather mundane to the layman, the use of warranties in Defense acquisition implies a variety of issues. There is the concept of using a warranty as a quality assurance device in addition to its commonly accepted role regarding producer liability. There are widespread cost implications not normally considered in commercial applications. Lastly, there is a wide variety of types and combinations of warranties, only a few of which have been discussed. Reviewing these concepts, however, is not enough to fully understand the impact of the recent warranty legislation. The next chapter provides some historic background upon which the current machinations are based.

performance liability but rather merely establishes a requirement for the contractor to perform necessary repairs to return a defective or damaged unit to operational condition within a certain time period. [21:XV-19] Although not as sophisticated as some warranty provisions, it is certainly not trivial.

where expensive depot-level reparable are frequently returned for refurbishment and their replacement from inventory is an expensive proposition, the value of this sort of provision becomes evident.

5. The Logistics Support Cost Commitment

This warranty version is a contractual device designed to achieve a target logistic support cost goal. It contrasts with the reliability improvement warranty in that maintenance remains the responsibility of the Government. Additionally, there may be award fees for underruns and penalties for overruns, both structured on some limited cost sharing basis.

6. The Warranting of Technical Data

The warranting of technical data has received renewed emphasis within the Department of Defense in an effort to assure the usability of data acquired in the process of technology transfer in developing secondary production sources of proprietary equipments. [22] Current procedures call for a warranty coverage period of three years, longer than most equipment warranties, during which the provider will correct or replace at no cost to the Government, any data not conforming to the requirement of the contract under which it was acquired.

as production continues, and increased understanding of the unit in its operational mode all combine in the favor of a current producer. There is also some potential for gaming of RIWs which can lead a contractor to understate the initial MTBF or operating standards in order to provide "improvement" later. [5:338]

3. The Mean Time Between Failure (MTBF) Warranty

There are other reliability and maintainability cost reduction incentive warranties less complicated to administer. One of these is the Mean Time Between Failure (MTBF) Warranty. [21:XV-16] In this scenario, the contractor guarantees that his equipment will reach and maintain some agreed upon MTBF. Without the "sliding scale" provision inherent in a RIW, this type of warranty demands not only a clear understanding of the inherent reliability of the equipment before the warranty can be negotiated, but also requires peak reliability with the first unit delivered. This in turn will tend to drive up the cost of the warranty. [21-XV-16] MTBF criteria are frequently structured into RIW warranties in commercial airline acquisition programs, but the absence of field troubleshooting and battlefield maintenance requirements make repair management by the contractor significantly easier. [21:XV-3]

4. The Mean Time to Repair (MTTR) Warranty

An Equipment Turnaround Time Warranty, also known as a Mean Time to Repair (MTTR) Warranty, is one of the no-fault clauses which serves no purpose in the establishment of

As an example, the first Navy experience with a RIW proposed to improve the mean time between failure (MTBF) for 800 A4/F4 Two-Gyro Inertial Platforms. [5:336] A thirty percent improvement was to have been obtained in three phases of twenty months each. Although there was some question of whether the improvement was related to a pre-induction overhaul to "initialize" each covered unit into the program, the overall result was undeniable - a dramatic improvement in readiness. [5:336]

The advantage to the customer of this type of warranty coverage is that it provides significant incentive for the contractor to continuously improve the reliability or performance of an equipment over the life of a contract. Rather than remaining ignorant of the condition, reliability, maintainability, and field performance of his equipment, the seller will remain in contact during the period the RIW is in place taking the opportunity to evaluate, document, and improve its performance. The outfall of this effort is generally lower life cycle costs. Additionally, provided design change retrofit records are properly maintained, there is the potential for a more reliable standardized configuration at the point of maintenance assumption by the Government. [5:338]

The contractor can benefit from a RIW because of the increased profit potential. The contractor may also develop a competitive advantage in securing follow-on contracts. Improved design and production techniques, closer control of the design

type of codification of the protections for both the buyer and the seller that had previously been assured through implied warranties.

2. The Reliability Improvement Warranty

One widely used warranty in equipment related contracts was introduced into Navy acquisition by the aircraft avionics industry as the "failure-free warranty", subsequently known as the "reliability improvement warranty (RIW)." [5:335]

RIW relates to the concept of life cycle costing. The general theory of life cycle costing is to reduce the cost of owning and operating a particular piece of equipment over its entire life, rather than simply focusing on initial acquisition cost or maintenance costs alone. The reliability improvement warranty is a basic provision of an acquisition instrument, logically limited to Fixed-Price type contracts with a long term delivery schedule, which serves to maintain the interest of the seller in the continuous improvement of the field performance and reliability of equipment. [5:336]

As the terms of the contract are defined, either during the acquisition planning phase when invitations for bid or requests for proposals are developed or, more likely, during negotiations with offerors, a schedule of required performance/reliability thresholds which increase over the life of the equipment is developed and included in the contract costing and performance analysis.

The current relationship between Congress and DOD was characterized by Mr. Alan Yuspeh, General Counsel, Senate Armed Services Committee, in a speech before the National Contract Management Association. There is real skepticism over the competence and conscientiousness of the leadership of the Department of Defense. [32] Some of this concern is undoubtedly a backlash from the strong Reagan administration position on Defense issues, but not all. [32] There is a sincere desire for a reduction in aggregate Defense spending levels, as well. [32] Although the level of Federal human services spending has gone from a small percentage of Defense spending in 1955 to over twice the level of DOD spending in recent fiscal years, there is still the perception, viewed differently by the two major American political adherents, that Defense spending is taking food from the mouths of our children. It is a complex and emotional problem, one which is beyond the scope of this paper. It needs to be recognized, however, as a driver of intense Congressional interest.

Another dramatic difficulty with the warranty issue is its essential emotional nature. An editorial from the Houston Post of February 21, 1984 provides a perception of the frustration felt by American taxpayers with paying for the apparent repair of military equipment delivered in an inadequate or defective condition. The last line of the editorial -- "We taxpayers are sick of it, too!" -- is a good example of this frustration. [33]

The emotion, however, is more extensive than merely a lack of patience with the management of the weapon systems acquisition process on the part of the taxpayers who are generally removed from the complexities of the procedure. A basic sense of the problem develops from a misunderstanding of the necessity to maintain a state-of-the-art level of technology in the development and, more critically, the deployment of weapon systems. [12] An analyst of Soviet weapon system development and acquisition policy, speaking at the Naval Postgraduate School, pointed out that their emphasis is on reliability and simplicity of operation. There are those who would suggest that such a policy is a more realistic use of the American defense dollar.

Although the primary reason for the Soviets fielding simple weapon systems is more closely related to the severe penalty for failure, there is a more compelling historical reason for staying current. The level of world-wide technology follows an exponential growth pattern such that the magnitude and impact of developments experienced over the last thirty years will be matched in the next fifteen. [34] Throughout history, the geopolitical balance has been shaped by the technology of weaponry. The long-bow, gunpowder, steam powered steel warships, the airplane, the submarine, and nuclear weaponry all were crucial in establishing winners and losers in international "competition". The winners were those who could develop and effectively deploy the new technology first.

E. THE DEFENSE MARKETPLACE

The last of the contextual relationships to recognize in developing an understanding of the warranty legislation is the structure of the Defense industrial marketplace.

The Defense marketplace is one of intense regulatory presence. Most interviewees felt not only that there are voluminous regulations and statutes dealing with every aspect of both sides of a potential sale, but that there are numerous other infringements upon the autonomy of the business relationship, as well. Among these is the use of detailed specifications by the seller identifying as comprehensively as possible the attributes of a product or service. [35:49] The Government also imposes upon the contractor a complex set of accounting requirements in support of the analysis attendant to a cost-based contract pricing system. Not only are there rules regulating the relationship between the Government and the Contractor, but there are a great many statutes and regulations with purely socio-economic impact, operating as an instrument of the welfare of the Federal Government. [36:279] There are provisions governing wage rates, working hours, minority and small business set-asides, the purchase of foreign hand tools or busses, the use of recycled materials, the prohibition of kickbacks, and a wide variety of other mandates. [36:286]

A second variation from standard free market industry is the composition of the business cycle. The Defense business

cycle is longer than almost any commercial situation, ranging in the neighborhood of ten years. By the time a company has developed the required research and development effort and accepted the cost of making a credible proposal for a weapon system's development and production, there has been commitment of great amounts of capital and resources. The contractor is then locked into a relationship with the Government which could last decades. An employee at North American Rockwell, a successful major aerospace contractor, without missing a day of work in thirty years, would still have seen only two roll-outs, the space shuttle and the B-1 bomber.

The funding profile of the Defense marketplace also requires consideration. The normal operation of contract performance funding differs from standard commercial use in the common application of progress payments, and we have already touched on the requirement for great amounts of start-up capital. but there are other structural differences as well. To begin with, there are political implications in the funding of major weapon systems. The B-1 is a superior example of the on-again, off-again authorization inherent in our political system. Probably the greatest issue in the funding cycle of the Department of Defense is its nature within the Federal budget system. Roughly 70 percent of the Federal budget is expended in entitlement programs. [37] These are social or welfare type expenditures like social

security benefits or food stamps which cannot be altered or diminished without changing the statutes on which they are based. In addition, due to their nature, they are almost always politically sensitive. The 30 percent of the budget that is not entitlement in nature is represented heavily by the Defense Department. Although spending for national defense has dropped from about 60 percent of total Federal outlays in the early 1950's to roughly 25 percent in the early 1980's, it represents almost all of the Federal Government's discretionary outlay, and therefore is subject to intense Congressional interest. [35:20]

The final structural consideration is the general characterization of the market itself. Unlike general commercial enterprise, the Defense marketplace is monopsonistic (several sellers and one buyer). This situation, when combined with the sovereign nature of the buyer, creates a condition where the buyer generally rules the marketplace. [35:73] In the case of the Defense industry, however, because of the complexity built into the regulatory system and the decentralized nature of acquisition management, the power is not as one-sided as it could be.

Within this monopsony, there is increased consolidation of production sources. The number of sources for battle tank castings has gone from five in 1960 to one. [35:144] There are only two airborne radar system subcontractors and only two sources for aircraft engines. [35:130] This consolidation

has created an intense "rivalry" competition which, when coupled with the length of the business cycle and the fact that there has been a steady decrease over the last fifteen years in the absolute number of weapon systems deliveries, turns every solicitation into an all or nothing proposition.

F. SUMMARY

There are four basic contextual considerations which must be understood to gain a clear grasp of the intent and potential effect of recent warranty legislation. The demise of the concept of "caveat emptor", the introduction into society of regulated risk management, the interest of Congress in Defense acquisition, and the basic structure of the Defense marketplace are all crucial and basic to current legislative developments.

IV. CURRENT LEGISLATIVE DEVELOPMENTS

A. INTRODUCTION

The next step in developing an understanding of the warranty issue as it effects acquisition managers is to look at the Congressional level action that has ensued over the last eighteen months regarding warranties. We will examine the events leading up to the introduction of Senator Andrews' legislation into the FY1984 Department of Defense Appropriation Act, the DOD implementation guidance for the legislation, the industry and political reaction to the DOD guidance, and the efforts taken in Congress to ameliorate the situation.

B. DEVELOPMENTS PRIOR TO THE LEGISLATION

In 1978, acquisition initiatives developed by Air Force General Alton D. Slay as Commander of the Air Force Systems Command included expansion of the use of warranties in Air Force weapons procurement, with emphasis on warranty utilization included in such projects as the Air-Launched Cruise Missile (ALCM), Advanced Medium Range Air-to-Air Missile (AMRAAM), and various jet fighter engine procurements. [25:A-1]

Slay's efforts were not directed solely toward negotiating contracts with warranty provisions, however. Two concurrent efforts to improve the state of the art of product assurance were initiated.

The Air Force Product Performance Agreement Guide (PPAG) was developed with the assistance of industry, providing annotated examples of warranties with descriptions, a discussion of applicability, measurement of compliance, and advantages and disadvantages in any particular procurement for a number of warranty provisions. [25:A-2]

The Air Force initiated the second of the concurrent efforts in December of 1980, describing a "Product Performance Agreement Center" to be established at Wright-Patterson Air Force Base in Dayton, Ohio, to serve as a DOD-Industry clearinghouse for product performance data and analysis. [25:A-2] The contractor's effort in the solicitation was wide ranging, including annual updates to the PPAG, risk/cost benefit modeling, and general administrative support.

The Air Force was not alone in progressing the issue of warranty utilization and administration, although their program was by far the most ambitious. The Army, in January of 1981, published AR 702-13 to establish the policies and procedures for administration of the Army's warranty program. [38] A study published by the Army Material Systems Analysis Activity Logistics Studies Office, however, concluded that the regulation was neither well known nor universally applied and showed that the utilization and administration of warranties by buying command emphasis applied. [39:3] The efforts of some commands yielded effective results and some did not. The study went on

to provide recommended changes to the structure and distribution of the regulation and included a simplistic guide for negotiating warranty provisions. The general policy of the Army, however, was summed up in the last paragraph of the study: [39:I-5]

Finally, remember that it is Army policy that warranties will not be acquired under normal circumstances. A warranty will be sought if it cannot be equitably removed from a commercial item, or if it will provide a definite benefit to the Army; the decision to acquire a warranty will be made only if the decision maker is convinced absolutely that one of the aforementioned conditions prevail.

While these developments were in motion, the Air Force was negotiating the F-100 jet engine, installed in F-15 and F-16 fighter aircraft, with Pratt and Whitney/United Technologies and with General Electric. Pressuring the Air Force to increase the significance of the warranty in the procurement evaluation, Pratt and Whitney beat out General Electric whose warranty provision was not as generous.

During this period, as well, there was an effort by the Defense Acquisition Regulatory (DAR) Council to improve the DAR and FAR guidance on warranty application and administration. [40:A-25] While the changes under consideration were not considered substantive, they were in reaction to the general feeling among DOD field contracting activities that warranty guidance was inadequate. Among other changes, proposed new language discussed:

- when to employ a warranty
- the use of billback terms (reimbursement by the contractor for a covered claim repaired by the Government or a third party)

- command designated warranty control personnel with the primary responsibility for administering warranties and warranty claims. [40:A-25]

Compared to later industry input, the comments regarding these proposed warranty changes were self-serving and parochial. The main thrust of the objections dealt with the difficulties of administering billbacks, minimizing the notification to customers and marking of warranted products, and trading off warranties for in-plant surveillance. The idea that a strong warranty meant that obtrusive in-plant Government inspection ("...costly Government involvement in contractor internal affairs...") could be reduced was later dropped by industry representatives in higher visibility discussions and Congressional testimony. [41:1]

The Andrews warranty provision was offered from the floor as an amendment to H.R. 4185, the fiscal year 1984 Department of Defense Appropriation Act, and appeared to take everyone by surprise. However, Senator Andrews had drafted the proposal as early as mid-July of 1983 and had provided it to various industry groups for comment.

Typical of the kinds of industry responses to the initial Andrews bill was this opening comment taken from an internal memorandum provided by a major aerospace prime contractor:

As a generalization, the proposed amendment is so hopelessly out of phase with economic reality, good contracting practice and common sense that it is impossible even to begin to suggest changes that might make the amendment more administerable.

The memo continued with what were considered to be among the more notable deficiencies of the amendment:

- the application of performance warranties to low volume productions of low maturity items
- the fact that the law would require modification of numerous existing contracts
- that placing a requirement on cost type contracts for the the contractor to bear all the costs of repair or replacement effectively eliminates such contrasts
- that "performance requirements" frequently change over the life of a weapon system
- that contractors would be unwilling to warrant a design over which it had no control.

These issues, and others, were discussed in a meeting between industry representatives and Senator Andrews in Fargo, North Dakota, on August 11th which was centered on the applicability to defense contracting of commercial airline practices. [42:1] The Senator discussed his reasons for developing the legislation, which were in part a desire to mandate a commercial marketing environment upon the defense acquisition process where both parties made and enforced stricter commitments. The contractor representatives disagreed with the Senator that such a condition was possible or even desirable, or that even if such a situation was desirable that the Andrews legislation would be able to foster such a relationship.

The discussion then centered around the requirement for design control in order to warrant performance, reinforcing the Senator's belief that the legislation, and subsequent

pressure from contractors, would alter DOD behavior, driving buying agencies to withdraw design controls and act more like commercial buyers. [42:3]

Between September 1983 and the date the Appropriations Act became effective (December 8, 1983) there were a variety of opportunities for testimony by the sponsor, by the Department of Defense, and by Industry representatives.

Industry representatives, described by interviewees as still wary after being stung repeatedly in the press over the spare parts pricing issue, were unwilling to fight the warranty issue with any vigor. Any indication that they were not willing to make every effort to improve the acquisition process was carefully avoided.

The Department of Defense also testified periodically over the issue, but was hampered by an additional problem. At the time the Andrews provision was introduced, there were well over one hundred different pieces of pending legislation affecting the acquisition process. At the time, it was not clear to the hierarchy at DOD that the warranty issue would flare up so quickly with such intensity. Consequently, there was no real hard evidence developed to support the DOD position, and the testimony during this period demurred in favor of continued study. [43]

Senator Andrews went on the offensive and posited his case clearly before the Senate Appropriations Committee, as well as making his position clear on the Senate floor. As

quoted in the Congressional Record of the Senate from November 14, 1983, Senator Andrews responded to previous criticism of the legislation by Senator John Tower, Chairman of the Senate Armed Services Committee:

The senior Senator from Texas...states that: 'the builder... would have to warrant the entire system even if the prime contractor had no control over the design or manufacture of numerous components.' Frankly, part of that is what we must do. There is too much buckpassing about who has control over design and who has input into whether a certain design is really practical and effective or not.

The purpose of the Warranty system...is to unleash the genius of American industry, to make sure that sloppy and faulty designs do not go into production at high costs to the taxpayer and even worse, jeopardize the lives of our fighting men who have to rely on these weapon systems. This is a well established principle in the warranting of components for commercial use. A farmer buys a tractor, he gets a warranty on the overall tractor from the tractor manufacturer, on the engine from Caterpillar or Cummings, on the transmission from Allison or whoever makes it. These warranties are included together by the manufacturer and passed on to the final purchaser. This is precisely the way...it should work in military procurement. [44:s16053-s16055]

C. THE FINAL LEGISLATION

The original proposed language reporting the legislation, provided by an industry representative, read as follows:

The committee is concerned that for too long Congress has been preoccupied with appropriating funds for changes in military equipment production and endless supplemental requests for spare parts for this equipment. In far too many instances military equipment is inadequate in design or prototype but is nevertheless procured before it is fully proven or perfected. Tax dollars should no longer be expended for the purpose of procuring equipment that is operationally unreliable, does not meet the mission, task and threat to the equipment and may imperil the lives of our troops required to use it. In order to have a reliable and cost effective national defense which will enable us to protect ourselves and our vital interests throughout the world, the committee recommends bill language which requires

the Department of Defense to obtain from the prime contractor a performance or defect warranty when it procures equipment produced from a perfected design prototype which has been represented by the prime contractor as meeting the specific performance requirements specified by the Government and which is based on the mission, task and threat to the equipment. The warranty will cover a specified period from the date of acceptance by the Government expressed in terms of years or of usage such as the number of miles in the case of vehicles or the number of rounds in the case of armaments as appropriate. The warranty will provide that the manufacturer must bear the cost of repairing or replacing any parts promptly that are necessary to achieve the required performance requirements and report all defects within sixty (60) days of the discovery.

Furthermore, the General Accounting Office is directed to evaluate and report annually to the Committees of the Congress, specifically the Appropriations and Armed Services Committees, whether the Department of Defense is in compliance with military equipment warranty provisions and to report instances of non-compliance with warranty provisions which it finds in the course of its audits of weapons systems programs and to recommend such improvements in compliance as the Comptroller General considers appropriate.

The final legislation, included in Appendix A as it appeared in the FY84 Defense Appropriations Act, was roughly similar. It included reference to performance requirements but no references to a "perfected design prototype". There was no provision for a time limit to the coverage. The language requiring continuous GAO monitoring was absent, and there was a provision for the Secretary of Defense to waive the requirements in some cases.

D. THE DEPARTMENT OF DEFENSE GUIDANCE

In the normal course of the development of statutory requirements, a "legislative history" is developed which serves to assist in the interpretation of the corporate will of

positions regarding the employment of warranties. Warranties became an emotional public issue with the introduction of Senator Andrews' legislation requiring their use in Defense weapon systems procurements in 1983. The emotion heightened with the reactions of DOD, the services, and the industry. It was not until GAO concurred with the DOD implementation of the original legislation that the way was cleared for a less offensive revision, which appeared in the FY85 Defense Authorization Act.

waivers were permitted. However, DOD interviewees described the reporting requirement as so stringent and the emotion surrounding incomplete implementation of the law ran so high that any waivers developed below the Secretary of Defense level were simply out of the question regardless of the justification. Under the new law, both class waivers and individual waivers are permitted. More importantly, in the accompanying legislative history, the "cost-effectiveness" waiver is depicted not as an "extraordinary mechanism" but rather as a potential natural result of conscientious negotiations between DOD and the contractor. [3:246-247]

Another significant change revolves around the requirement for remedies. Unlike the original legislation, the revised version permits DOD some flexibility in requiring remedies. In some cases an assessment against the contractor of the full amount of a warranty remedy may be inequitable. The new legislation allows DOD to be guided by traditional concepts of "equitable adjustment" in the administration of the warranty. [3:250]

H. SUMMARY

The warranty issue did not spring up overnight. Since 1978 it has been an increasingly important issue in the management of Defense acquisition. The DAR Council has addressed the coverage of warranties in the FAR and the services have developed comprehensive, albeit not necessarily cohesive,

- component -- any constituent element of a weapon system or other defense equipment
- mature full scale production -- the manufacture of all units of a weapon system or other defense equipment after the manufacture of either the first 10 percent of the eventual total production of such system or equipment or the initial production quantity, whichever is less
- initial production quantity -- the number of units of a weapon system or other defense equipment contracted for in the first year of full scale production.

The new legislation addressed the problem which potentially would plague small businesses by exempting entities other than the prime contractor from mandated warranties. The legislation calls for the traditional system where the prime contractor assumes responsibility for the whole system and then obtains warranties from subcontractors as appropriate. [3:244]

The risk inherent in warranting initial production units is minimized through the caveat that the mandatory requirement for a guarantee that the system meets required essential performance requirements only applies during mature full-scale production, as defined above. [3:247-248]

The approach to the last of the major issues, that of "no fault liability" resulting from directed designs, is not as straightforward. Under the new law, the contractor must warrant conformance to essential performance requirements, but only after negotiation during full-scale production. [3:244]

There are other revisions as well. One of the most significant is the restructuring and relaxing of the requirement to report any waivers to the Congress. Under Section 794,

- the potential adverse impact on the ability of small business to compete for defense contracts driven by the potential for disproportionate liability expenses and by the potential anti-competitive requirement for pedigreed parts
- mandating a warranty under concurrency or for untested weapon systems could lead to either overpriced warranties or downward negotiation of performance requirements, with either situation being undesirable
- the imposition of no-fault liability in the event of a directed design

Section 2403 (included as Appendix C) set about to address these deficiencies.

It was recognized, as pointed out by the GAO report on the DOD warranty guidance, that there were several terms appearing in the original legislation which required definition in order to establish a common base for discussing the subsequent provisions. The terms defined were: [3:242-243]

- weapon system or other defense equipment -- items that can be used directly by the armed forces to carry out combat missions. For purposes of the statute, only systems which on a per unit basis cost more than \$100,000, or for which the eventual total procurement is more than \$10 Million, are covered
- prime contractor -- a party that has entered into an agreement directly with the United States to furnish part or all of the weapon system or other defense equipment
- design and manufacturing requirements -- the structural and engineering plans, and manufacturing particulars, setting forth precise measurements, tolerances, materials, processes, and in process and finished product tests for the weapon system or other defense equipment
- essential performance requirements -- the operating capabilities or maintenance and reliability characteristics of a weapon system or other defense equipment that are determined by the Secretary of Defense to be necessary for the system or equipment to fulfill the military requirement for which it was designed

contracts from the requirements. However, the bottom line was clear [57:1]:

We believe the DOD guidance and model guarantee clause, issued in final form on March 14, 1984, are consistent with and do not go beyond the requirements of the statute.

G. THE FY85 DEFENSE AUTHORIZATION ACT

When the GAO report was published, the warranty issue went "underground". It was clear to both the proponents and the opponents of the warranty legislation that nothing more was to be gained by continued public whipping of the issue. Rather, it was felt that a rewritten version was necessary, clarifying the inadequacies of the original legislation while maintaining the basic warranty requirement. [32]

Under the guidance of Mr. Alan Yuspeh, General Counsel of the Senate Armed Services Committee, testimony was reviewed and comments were solicited from the various factions. The first order of business was to develop a legislative history on which to base and later interpret the rewritten statute. The second, albeit concurrent, effort was to develop the rewritten statute as a section of the FY85 Defense Authorization Act in a form acceptable to the three major camps (DOD, Senator Andrews, and the Contractors).

The compromise effort was published on 31 May 1984 as Section 191 of the Defense Authorization Bill, S. 2414. The legislative history identified three major concerns with the original legislation: [3:241-242]

President's Budget Appendix included a request to repeal the warranty provision. [52] Further pressure in the press [53] and from members of Congress [54] finally resulted with Weinberger relenting.

While the basic reaction both in the press and in Congress was one of distracted amazement with the continuing aversion of DOD to the "will of Congress," [55] in early March 1984, an undercurrent of dismay with the complexity of the warranty problem began to develop. After extensive hearings before the Senate Armed Services Committee in late February 1984, there was some realization that there were inadequate hearings held before enactment of the legislation and that further hearings were necessary to fully resolve the issue.[56]

On 15 March 1984, the final formal DOD guidance regarding the implementation of the warranty provision was issued. Although the guidance did not represent any great departure from what was expected, its release was occasioned by Senator Ted Stevens (R-Alaska) ordering a GAO review to determine compliance with the law.

It was this report, issued 24 April 1984, which finally ameliorated the intense criticism of the Department of Defense implementation effort.

The report pointed out the imprecision in the language of several critical sections of the implementing legislation. It also took issue with the DOD blanket waiver of all cost-type

difficulty of keeping them all straight becomes enormous and, by implication, expensive.

The sixth assumption of the legislation attacked by Gordon was that, rather than expand the liability of the contractor to improve the quality and suitability of weapon systems, use of a commercial type warranty provision really limits the legal liability of the contractor.

The last of what Gordon considered limiting presumptions touches on the difference between the commercial and Defense marketplace. The specific point was that in the commercial world the manufacturer has design and configuration control and can define acceptable operating and periodic maintenance requirements. Such conditions are not applicable to Defense contracts.

After addressing what he considered to be deficiencies in the legislation, Mr. Gordon went on to discuss the desire of DOD to repeal the law or, as a fallback position, to develop alternative language which would be more reasonable from the perspective of DOD. [51]

The DOD effort to force repeal was met with resistance in the press and from members of Congress. Part of the difficulty experienced by DOD came from contradictory statements of Secretary Weinberger. On 6 February 1984, Weinberger appeared before the Senate Budget Committee and assured Senator Andrews that he was striving to make the legislation work. However, within a week it was pointed out that the Fiscal 1985

out that in aircraft construction it has been common to award the third production option before completion of operational test and evaluation.

Second, Gordon discussed the difficulty in expecting a second source manufacturer to warrant a separately provided directed design.

I cannot for the life of me comprehend how a manufacturer of a system can guarantee that the system is designed and manufactured to conform to meet the performance requirements when he did not do the design but just is doing the manufacture as a follow-up for example, or as a second source.

The third assumption pointed out was the difficulty in permitting construction of a weapon system solely to a performance requirement. Gordon argued that such an agreement would eliminate the legal requirement to maintain any sort of baseline configuration as the manufacturer would have the unilateral right to change the design to accommodate any production requirements.

The fourth issue that Gordon attacked was the sweeping problem of cost effectiveness of warranty provisions. Costs for deployed maintenance, administrative costs for the Government, and contractor contract execution procedures were all held up as potential complications developed by the law.

The fifth objection related to the magnitude of warranties involved in a weapon system. The example given was the B-1 bomber with 19,000 vendors. With each vendor potentially having different variations of guarantee provisions, the

- y. weapon systems acquisitions frequently result in short production runs and poor field testing as well as comprising a restricted customer allocation base over which to amortize warranty costs

While comments on the legislation began to filter in, there was apparent concern at OSD that the issue was not being pursued as aggressively as possible by the Defense industry. On 10 February 1984, Mr. Harvey Gordon, Assistant Deputy Under Secretary of Defense for Research and Engineering (Acquisition Management) took his case to the National Contract Management Association Regional Symposium at Sacramento, California. [51]

Mr. Gordon described the DOD strategy in developing and publishing the draft guidance to elicit "a great number of inputs pointing out the deficiencies" and went on to describe what OSD considered to be deficiencies with the legislation.

The first problem, according to Mr. Gordon, was that the language of the legislation was imprecise. He provided as examples the terms "weapon system", "procurement", and "component" among others. For laymen, these terms have proximate meanings as elements of conversation, however, Mr. Gordon argued that in a legal sense they need a contextual definition which was not provided by the legislation.

Mr. Gordon went on to outline specific issues that OSD felt were "incorrect presumptions which underlie the legislation". The first was the implicit denial of production concurrent with development of a weapon system. Gordon pointed

- f. the value of a warranty is questionable with a sole source contractor
- g. warranties increase surveillance and contract administration costs
- h. performance parameters can be adversely effected by the Governments handling or operation of the system
- i. failure rates are frequently not available for first run equipments
- j. the liability exposure incident to a system failure caused by a component failure could be massive
- k. the warranty requirement might result in a proliferation of disputes and litigation
- l. terms contained within the legislation are poorly defined (i.e. production, weapon system)
- m. duration of the warranty coverage is unspecified
- n. performance specifications may be undefined or poorly defined particularly in an environment of concurrency
- o. costs cannot always be clearly defined
- p. contractors will be unwilling to warrant a directed design
- q. warranties are inappropriate for cost type contracts
- r. warranty indemnification/insurance costs are not considered allowable by cost accounting standards
- s. there is no provision for a liability ceiling
- t. retroactive language calls for modification of extant contracts
- u. prime contractors are drawn into a position of "no fault" liability where any defect must be corrected at no cost to the Government
- v. mandated warranties inhibit innovative technology
- w. warranties may not necessarily be cost effective
- x. there will be cost pyramiding of contingent pricing

contractors, and numerous special interest lobby groups. The following distillation of opinions is provided. It should be noted that occasionally the flavor of an individual author's language is preserved to impart the emotion of the response.

1. Positive Comments

- a. the law will insure that weapon systems will work as intended
- b. warranties enhance reliability
- c. warranties enhance performance
- d. warranties act as a marketing incentive
- e. warranties "minimize half-baked technology in a delivered system"
- f. warranties will cut the cost of defense procurement, operations and maintenance, and training
- g. prime contractors will have to diversify their subcontractor base through warranty delegation
- h. weapons will be more "trigger-ready"
- i. warranties have become an established part of the forces of the marketplace

2. Negative Comments

- a. small businesses are not capable of assuming the risks of the initial warranty cost
- b. small businesses are not capable of assuming the risk of the contingent liability implied by the DOD draft guidance
- c. pedigreed parts may preclude breakout
- d. small businesses cannot afford to remain tooled after component delivery in support of prime contractor warranty requirements
- e. organic deployed maintenance capabilities may be lost or underdeveloped

the Senator proposed to outline his position clearly regarding the warranty requirement, there were internal logical difficulties with his reply.

Although the language of the legislation provided for a waiver by the Secretary of Defense where a warranty requirement would not be cost effective, Senator Andrews' position was that:

No funds shall be appropriated by this or any other act to build a weapon system unless the prime contractor or contractors provide the Government with a written guarantee.
[50:4]

Another passage which served to confuse the issue was the elementary response to the OSD concern over the ability to estimate accurately failure rates for high technology equipments. Rather than acknowledge that such a difficulty exists, the Senator provided the following lesson in statistics:

[50:5]

Estimating failure rates accurately may not be so difficult if you can reach an acceptable probability the weapon system will work. One formula is as follows: $p(p_1) \times (p_2)$ or: the probability of its subsystems working multiplied by one another.

F. IMPLEMENTING GUIDANCE PUBLISHED IN FEDERAL REGISTER

On 20 January 1984 the draft DOD implementing guidance was released for public comment in the Federal Register and is included as Appendix B. [47:2503] The reactions were not without emotion and included almost 200 point papers and letters containing positive and negative feedback from various industry segments; small businesses, large Defense prime

the policy issues and to issue guidance which would permit implementation of the law with minimum disruption.

E. THE BATTLE IS ENGAGED

Described by most interviewees as an intentionally restrictive and excessively literal interpretation of the requirements of the legislation, the DOD guidance created intense objection from Senator Andrews as well as from industry. Ms. Mary Ann Gilleece, DUSDRE(AM), tried to forestall some of Andrews' objections by outlining the actions taken by OSD and describing what she considered to be difficulties with immediate implementation of the requirement. [49] Some of the concerns and considerations included:

1. a potential requirement for pedigreed parts,
2. impact on component breakout,
3. impact on small businesses,
4. structure of flowdown procedures,
5. potential to impact field maintenance capabilities,
6. potential for delays to contracts currently being negotiated,
7. potential inhibition of technological innovation,
8. difficulty in determining credible failure rates.

Senator Andrews responded with a letter to Ms. Gilleece. [50] While concurring with some of her comments, primarily in the case of imminently concluded production contracts, he provided counter-examples for other OSD concerns. Although

Congress and to act as legal precedent where it may be necessary. Because of the derivation of this particular legislation, no such data existed. With the signing of the Appropriations Act, the Department of Defense was faced with the complicated task of implementing what was viewed as a potentially disruptive statutory requirement without the benefit of any historic guidance.

On 29 November 1983, prior to the signing of the law, a number of representatives from industry met with the DOD Deputy General Counsel and members of the DOD acquisition management staff. [46:1] A number of specific problems were raised, such as the definition of the term "weapon system" in the legislation. In addition, some generic issues were raised, such as the ability of the insurance industry to provide appropriate indemnification and the potential effect of the legislation on the spare parts breakout program. [46:2]

Following that meeting, a "Notice of Draft Guidance on Written Guarantees" was developed, subsequently published in the Federal Register on 20 January 1984, requesting written comments to the Deputy Under Secretary of Defense for Research and Engineering (Acquisition Management) (DUSDRE(AM)) no later than 21 February 1984. [47:2502]

On 16 December 1983, Deputy Secretary of Defense Paul Thayer issued a 90-day blanket waiver of the requirements of the law in order to provide DOD with time to resolve some of

V. SUMMARY ANALYSIS OF THE ISSUES

The warranty issue has been, over the last eighteen months, a microcosmic example of Congressional administration and regulation of the Defense acquisition process. It has included all the major players in Defense acquisition policy; Congress, DOD, representatives of small and large Defense contractors, and the press. It has embodied political imperatives and machinations.

Initially, the issue gave all the appearance of being benign and mundane. It was nominally based on the relatively simple premise of assuring delivery to strict quality standards of Defense weapon systems. The proponents of the legislated requirement could not see why anyone would argue with the concept of "getting our money's worth". Opponents were equally distressed that numerous debilitating flaws in the law were going unrecognized.

From the beginning, the Department of Defense was slow out of the starting blocks. DOD fought the legislative requirement mandating warranties as being costly and unenforceable, but the political initiative belonged to Senator Andrews. DOD took issue with the language of the original legislation as being vague in some places and imprecise in others, but was unwilling to provide possible compromise language while there

was any hope of repeal of the law. There was a general frustration that the issue was more complex than most Members of Congress realized, including Senator Andrews. In the final analysis, there was never any disagreement that a well-negotiated warranty package could be an asset to almost any weapon system procurement. The issue was over the broad reach and potential unintended drawbacks to the original legislation.

From the perspective of Industry practitioners, the warranty issue was unusual in its ability to rally the support of diverse and competitive sectors. There was an unusually high level of communication among both small and large businesses which was relatively void of parochial interest. In general, their fight took on the same character as the DOD argument. The feeling was that while warranties per se could be valuable, mandating them in every case was curiously irrational. In the words of Mr. John E. Cavanaugh, a partner with McKenna, Conner, and Cuneo of Los Angeles, "The idea that farm tractors are analogous to weapon systems has a certain wholesome goofiness about it". [58]

Although the initial reaction of Congress to the distaste for the law as presented by the practitioners was one of outrage over the rejection of the "will of the Congress", eventually there was a recognition of the complexity of the issue and the initial effort was reconsidered. If there was not such political posturing, emotion, and "motherhood" over

"getting what we pay for" from Defense contractors, the law may even have been repealed.

This is not to suggest that the only issue involved is whether or not to mandate warranty coverage on DOD acquisitions. Nor even that once the Congress realized that warranties are more than "indemnification clauses", there would be an appreciation for their use and their limitations. There are two related issues that play heavily on the discussion.

First is the general strategic concept, embraced almost universally within current military force structure planning, that maintaining a credible defense posture in the face of large scale multi-theater aggression requires the development and deployment of high technology weapon system alternatives. While such a concept appears plausible from the point of view of the military manager and simultaneously appears reasonable to most military and geopolitical historians, there is an increasing sense of uneasiness among many Americans and Europeans that we are developing a mechanized defense capability which is being tuned to react faster than its human "masters" and which, once activated, may not be recalled. The lessons of history aside, it is not unreasonable to expect that a hair-trigger command and control system coupled to the current inventory of deadly weapons might appropriately cause a sense of corporate nervousness within the electorate.

The second issue, although less compelling in terms of its emotional appeal, is still a significant issue in terms of

the management of the Defense industrial marketplace. The dramatic differences between the standard commercial marketplace and the Defense marketplace are frequently misunderstood or neglected as a political expedient. Some of the variation is structural in nature and other aspects are the result of legislative or regulatory mandate. In either event, pressure often is applied to modify the performance of the Defense marketplace through the direct application of commercial practices which may or may not apply.

The history of the current warranty mandate includes mechanical difficulties in addition to these "philosophical" problems. At one point, Senator Andrews indicated that the original law he proposed was intended only to change the emphasis of the implementation of the DAR/FAR warranty clauses from including a warranty only when it can be demonstrated to be cost effective to including a warranty unless it can be demonstrated not to be cost effective. There could be an argument made for such a change to the inclusion of warranty coverages, especially considering their rapidly increasing commercial proliferation. Even so, however, the law was poorly written and poorly staffed. There were few hearings held to discuss the issue and, because of the current state of the legislative process, early testimony tended to be poorly supported and superficial.

The legislation was also poorly staffed in the sense of the relationship between Congress and DOD. There is a basic

structural differences between legislative and executive policy development and administration. Legislatures are "graded" on the development of new rules and procedures in response to problematic conditions occurring in the administration of the Government. Executive departments, however, are "graded" on the basis of developing solutions to problems within the existing regulatory/statutory environment. This relationship has helped to lead to an environment where the impression is that Congress is "micromanaging" the efforts of the executive branch. This, in turn, has contributed to the development of an adversarial relationship at the working level between Congress and DOD. This relationship has been a roadblock to the development of useable warranty legislation.

It would be presumptive in this work to espouse some platitudes that propose to solve all the perceived management problems of the United States Government. Considering the metaphysics of the legislative process, the counterplay among leaders of the Legislative and Executive branch is probably healthy. Similarly, although Senator Tower and many others perceive and decry a lack of leadership in Congress, such manipulation is within the nature of Congress and a satisfactory solution cannot necessarily be externally imposed by attempting to change the structure of the body. However, at the staff level, there is great aversion and animosity between the executive and legislative factions. This serves to foster a relationship characterized by mutual distrust with

both motives and data and could hardly be considered an efficient system for maintaining a continuing and productive relationship.

If the intent of the legislation is broader than Senator Andrews initially claimed, implying a change to the basic marketing concept under which the nation's Defense assets are procured, there is no question that it was at least poorly conceived and potentially impossible to administer. It is no mere assertion of a Machiavelian "hidden agenda" to assume that there is more to the legislative intent than merely pressuring a broader use of the current requirements. In his early meetings with industry executives, and during later testimony, Senator Andrews discusses the desirability of driving the Defense marketplace toward a more commercial type environment. In such an environment, the contractor provides some stable piece of technology in response to and within an established framework of requirements determination, design, development and production control. This interpretation of the development of the warranty legislation invokes a significantly more complex analysis, one which was totally neglected during the testimony. Even if it was possible through the simplistic language of the P.L. 98-212 warranty language to force a systemic change to the weapon systems acquisition process as basic as the issue of complete design control and responsibility, for instance, it is not readily evident that such a change would provide weapon systems in consonance with

the current national technological Defense strategy. In addition, there are numerous contract oversight responsibilities currently administered by DOD, in-plant inspection during production for instance, which would logically revert to the contractor in a "commercial" environment. This would place an increased burden on the user/recipient to determine, in a detailed sense, that the equipment was manufactured to the design. It is not that such a situation is inherently evil, but it merely points out that the reconfiguration of the Defense marketplace to a quasi-civilian/commercial marketplace is significantly more complex than could be accomplished through P.L. 98-212.

Several unanswered problems remain. Although the warranty requirement is closely tied to the issue of cost-effectiveness, a reasonable system for permitting the contracting officer to determine the cost/benefit relationships inherent in a warranty package simply does not exist. Current theory defines a cost effective warranty only as being a separately costed line item less than a couple of percent of the total contract price. Such a simplistic view, loosely based on commercial marketing experience, neglects any potential variation of warranty provisions and coverage as well as the potential for enforced remedies.

Another difficulty, causing deep emotion within the contractor sector, is the effect of the legislation on small and disadvantaged businesses acting as either prime contractors

or subcontractors. In this sense, the warranty issue does not diverge from the monochromatic regulatory structure imposed on the Defense industry as a whole. It will remain a matter of time for the full financial effect of the warranty legislation to become evident.

The final difficulty, and potentially the most crucial, remains the issue of enforcement. You can negotiate the cleverest and most cost effective warranty provisions on record, but if you can't enforce the requirements of the provision, there is no gain. The inability to ensure that contractual requirements are met are fed from two directions.

First, there is the records-keeping problem of maintaining an awareness of what components and systems are warranted at what level. Although our automated equipment management systems are becoming more sophisticated, in most cases it is still incumbent upon the field level technician to identify and initiate a warranty claim action.

The second, and by far the most insidious, of the barriers to effective warranty implementation is a matter of attitude. It is not enough to understand the provisions and implications of the warranty clauses we negotiate. We must be willing to take whatever steps may be necessary to enforce them.

The bottom line to the warranty issue is the continuing need to provide effective weapon systems to our soldiers and sailors. Negotiating a cost effective warranty is only a small part of managing a weapon system's operation and

maintenance life cycle. It is incumbent upon the management of the Defense establishment to ensure that the warranty becomes a useful tool, integral to the equipment's availability, rather than an administrative burden to the end user.

VI. CONCLUSIONS AND RECOMMENDATIONS

A. CONCLUSIONS

The objective of this research effort were to analyze the issue of warranties in Defense acquisition in order to develop a historical context, examine applicable costs and benefits, and trace the current legislative history. In accomplishing this, several conclusions have been reached.

Conclusion # 1 - Warranties covering Defense weapon systems are significantly different from warranties covering commercial applications. Commercial warranties are generally imposed to clearly define the limits of liability regarding a product closely controlled by producer. While Defense warranties also define the limits of product liability for both the Government and the contractor, they also serve frequently as product performance improvement mechanisms. In addition, the commercial concept of strict control over the product's design, capabilities, and quantity produced does not apply to the current Defense acquisition environment.

Conclusion # 2 - The complexity of the warranty issue was not initially well-recognized within Congress. The paucity of hearings, the lack of strong initial industrial response, and the oversimplification of Senator Andrews' responses to the initial DOD objections all served to mask the complexity of the warranty issue. It wasn't until late Spring 1984 that Congressional leaders began to see the magnitude of the problem.

Conclusion # 3 - The life cycle cost implications of warranties on weapon systems are complex and poorly documented. As discussed in Chapter II, warranties dramatically affect numerous components of the cost of owning and operating a weapon system. There have been numerous studies relating to the costs of warranties on products distributed in the commercial marketplace. There are, however, few studies which even address the cost effectiveness of Defense weapon systems warranties, much less define the discrete values of the various cost elements affected.

Conclusion # 4 - The warranty requirement of Section 794 of Public Law 98-212 was inappropriately conceived and poorly drafted. It was not clear from the language of the legislation whether the intent of the law was merely to pressure DOD for the greater inclusion of warranty requirements in weapon systems procurements or to manipulate the basic structure of the Defense marketplace. The vague language made the intent of the law difficult to comprehend and odious in its apparent application.

Conclusion # 5 - The initial warranty legislation evolved in a peculiar fashion and took the acquisition community by surprise. The introduction of the warranty legislation by Senator Andrews from the floor of the Senate was certainly not unprecedented. However, the legislation addressed a complex legal and administrative issue without any substantial hearings and without any useful legislative history. The intent of the Congress was poorly transmitted and it was left to acquisition managers and their legal staffs to uncover the intent of the legislation and to develop appropriate legal precedents.

Conclusion # 6 - Section 2304 of the FY85 Defense Authorization Act and its accompanying legislative history correct many of the deficiencies of the original warranty legislation. As described in Chapter IV, the revised legislation addresses numerous barriers to appropriate implementation of the warranty requirement as envisioned by Congress including:

- the vagueness of the original language
- the effect on small business
- the issue of warranties in a concurrent environment
- no-fault liability in the event of a directed design.

Conclusion # 7 - Section 794 of Public Law 98-212 requiring warranties on weapon systems acquired by the Department of Defense has been fully implemented by DOD but only reluctantly and after intense political machinations. As described in Chapter IV, the General Accounting Office study of April 1984 described the DOD implementation effort as within the scope and intent of the law, although prior to that study, the issue was the subject of intense public debate and political posturing.

Conclusion # 8 - The adversarial relationship between Congress and DOD at the working level is counterproductive and should

be discouraged. Throughout the evolution of this legislative issue, the DOD and Congress have been at odds. While it is within the nature of the political system for the leadership to interact in such a fashion, it is disruptive to the process when lines of communication at the working level are severed or blocked by political posturing.

Conclusion # 9 - Congress has no clearly articulated policy for the management of the Defense industrial base. As discussed in Chapter III, the current structure of the Defense industrial base is more an effect of the complex Defense acquisition process than the result of some clear developmental initiatives by Congress. There is a constant proliferation of overlapping legislative proposals, many of which contain broad reaching and unintended deleterious results. Rather than providing and maintaining an articulated statement of national priorities, Congress tends, rather, to develop and implement solutions to individual problematic occurrences.

Conclusion # 10 - The enforcement of warranties is an important adjunct consideration to their usefulness which has been neglected throughout most of the discussions regarding warranty legislation. The enforcement of remedies has been a significant issue in every GAO warranty study to date. Enforcement is crucial to any cost/benefit analysis. There is no benefit where there is no enforcement.

B. RECOMMENDATIONS

Recommendation # 1 - The differences between commercial warranties and Defense warranties should be addressed and established. There are legal and structural differences between the Defense and Commercial marketplace. Similarly, there are legal and precedential differences between Defense and commercial warranties. As an aid to increasing the use of warranties within the Department of Defense, a DOD policy should be developed and published which addresses the intent, structure, and use of warranty clauses within the Department of Defense and clearly distinguishes between DOD warranty applications and the applications found in the commercial environment.

Recommendation # 2 - The Department of Defense should continue to monitor the implementation of the revised warranty legislation and recommend improvements. There are great cost implications and potential benefits involved in a viable warranty program. Additionally, the popular public impression is that DOD is insensitive to the need for

frugality. The budgeting credibility of DOD could be improved through the identification and tracking of warranty related issues, through appropriate recommendations to Congress increasing the effectiveness of legislative efforts, and through providing continuing implementation guidance to Defense agencies.

Recommendation # 3 - A comprehensive study should be undertaken to identify and estimate cost elements peculiar to the weapon system warranty. Warranties are understood in the legislation to be inappropriate where they are not cost effective. However, there exists no empirical data addressing the cost of a weapon system warranty compared to the benefits derived. While it is understood that such a study could potentially become cumbersome and complex, there is still a need to provide the contract negotiator with some understanding of Defense warranty cost behaviors to compare with a contractor's proposal.

Recommendation # 4 - Warranty enforcement policies and mechanisms should be reviewed and updated. Enforcement of a warranty is critical to maximizing its benefit. As the proliferation of warranties expands, personnel must be trained and automated systems developed to identify warranted equipments and to appropriately and efficiently enforce warranty provisions.

Recommendation # 5 - There should be established within the structure of Congress one entity responsible for the oversight and regulation of DOD acquisition. Because of the political and economic implications, weapon systems acquisition is a fruitful target of opportunity for many different factions within the Congress. A single bipartisan commission should be established by an act of Congress to administer Federal acquisition policy. This one group would be tasked with the Congressional oversight of the regulatory function as well as with reviewing and establishing Defense acquisition policy. Instituting such an arrangement would serve at least two crucial functions. It would simplify the scope of legislation that each member of Congress would have to deal with. There would be fewer overlapping and redundant bills in the works. Additionally, it would permit the Defense Department and Defense industries to deal with a single voice of Congress, one which could provide less conflicting regulatory and philosophic guidance.

Recommendation # 6 - Congress should define clearly the appropriate structure of the Defense marketplace and direct any legislation to developing and maintaining such an

environment. It is confusing, in an economic sense, to expect a free market environment for the purposes of some legislation, and a monopsynistic sovereign-directed market for others. It is equally debilitating to neglect the differences in resources and capabilities between small business and major prime contractors when developing and applying regulatory requirements. Agreement on the basic structure and economic development of the Defense marketplace would at least provide a common basis for the development of meaningful regulatory actions.

C. ADDRESSING THE RESEARCH QUESTION

How did the Department of Defense and the Defense Industry implement the requirement for the private sector to warrant weapon systems as provided for in P.L. 98-212 and what are the implications of this implementation?

Initially, the entire Defense acquisition community was surprised by the warranty requirement imposed by P.L. 98-212. It was apparent at DOD that the issue was larger than most people thought and that the legislation implied historic and heroic changes to the concept and application of warranties in Defense acquisition. When the initial guidance was developed by DOD it was perceived by many as being unnecessarily rigorous. It was a tough and strict construction of the requirement designed to push the industry into rejecting the requirement itself. While industry did finally respond, the objections came too late to force repeal of the legislation. There were sufficient objections, however, to press Congress to revisit the issue and to provide clearer and more reasonable guidance.

AD-A155 165

WARRANTIES IN DEFENSE ACQUISITION: THE CONCEPT THE
CONTEXT AND THE CONGRESS(U) NAVAL POSTGRADUATE SCHOOL
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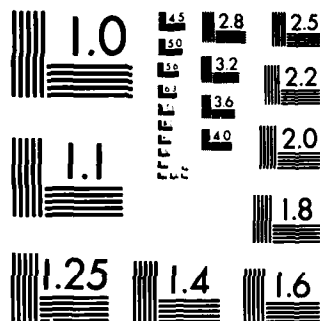
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MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

The long-term implications of the warranty issue have not yet manifested themselves. It is not clear what effect the legislation will have on the cost of weapon systems or on the management of weapon system maintenance programs within the Department of Defense. In addition, it is not clear what effect, if any, the warranty issue will have on the legislative process as it applies to Defense acquisition regulation and management.

D. RECOMMENDATIONS FOR FUTURE STUDY

The long term implications of the warranty legislation on small business will only begin to become evident as warranty provisions are negotiated and enforced on the full range of contracts as called for by the legislation. A comprehensive examination of the financial impact of the warranty legislation on small businesses over the next several years would be appropriate.

Another cost implication of the warranty legislation is the effect on the cost of individual weapon system contracts. There have been numerous estimates of the cost impact from savings of twenty percent to increased costs of up to forty percent. In fact, there have been few definitive studies regarding the cost implications of warranties across the spectrum of weapon system life-cycle costs.

The final issue in determining the long term effects of the warranty legislation is in resolving the capability

of the services to appropriately enforce the mandated warranty provisions. What systems are in place to permit the identification of warranted equipments by both the services and by prime contractors? How effective are those systems?

APPENDIX A
FY84 DEFENSE APPROPRIATION ACT

H. R. 4185

Ninety-eighth Congress of the United States of Amer

AT THE FIRST SESSION

*Begun and held at the City of Washington on Monday, the third day of January,
one thousand nine hundred and eighty-three*

An Act

*Making appropriations for the Department of Defense for the fiscal year ending
September 30, 1984, and for other purposes.*

*Be it enacted by the Senate and House of Representatives of the
United States of America in Congress assembled, That the following
sums are appropriated, out of any money in the Treasury not
otherwise appropriated, for the fiscal year ending September 30,
1984, for military functions administered by the Department of
Defense, and for other purposes, namely:*

TITLE I

MILITARY PERSONNEL

MILITARY PERSONNEL, ARMY

For pay, allowances, individual clothing, subsistence, interest on deposits, gratuities, permanent change of station travel (including all expenses thereof for organizational movements), and expenses of temporary duty travel between permanent duty stations, for members of the Army on active duty (except members of reserve components provided for elsewhere), cadets, and aviation cadets; \$15,048,533,000.

MILITARY PERSONNEL, NAVY

For pay, allowances, individual clothing, subsistence, interest on deposits, gratuities, permanent change of station travel (including all expenses thereof for organizational movements), and expenses of temporary duty travel between permanent duty stations, for members of the Navy on active duty (except members of the Reserve provided for elsewhere), midshipmen, and aviation cadets; \$11,171,278,000: *Provided*, That notwithstanding any other provision of law, funds made available by this Act shall be available for payment of the Aviation Officer Continuation Bonus pursuant to agreements accepted from officers of all aviation specialties where shortages exist.

MILITARY PERSONNEL, MARINE CORPS

For pay, allowances, individual clothing, subsistence, interest on deposits, gratuities, permanent change of station travel (including all expenses thereof for organizational movements), and expenses of temporary duty travel between permanent duty stations, for members of the Marine Corps on active duty (except members of the Reserve provided for elsewhere); \$3,433,859,000: *Provided*, That notwithstanding any other provision of law, funds made available by this Act shall be available for payment of the Aviation Officer

demand. For the purposes of this Act, the requirement for "submission" of a shipbuilding claim, request, or demand is met only when the certification required in section 6(c)(1) of the Contracts Disputes Act of 1978 is provided and the shipbuilding claim, request, or demand is fully documented and substantiated in accordance with regulations to be promulgated by the Secretary of Defense.

Sec. 788. Under regulations prescribed by the Secretary of Defense, the Department of the Air Force, and Defense Logistics Agency, may test a flat rate per diem system for military and civilian travel allowances: *Provided*, That per diem allowances paid under a flat rate per diem system shall be in an amount determined by the Secretary of Defense to be sufficient to meet normal and necessary expenses in the area in which travel is performed, but in no event will the travel allowances exceed \$75 for each day in travel status within the continental United States: *Provided further*, That the test approved under this section shall expire on September 30, 1985, or upon the effective date of permanent legislation establishing a flat rate per diem system for military and civilian personnel, whichever occurs first.

Sec. 789. None of the funds appropriated by this Act shall be used for the transfer of the Department of Defense Dependents Schools (DODDS) to the Department of Education, as prohibited by section 1223 of the Department of Defense Authorization Act, 1984.

Sec. 790. No part of the funds appropriated herein shall be available for the purchase of more than 50 per centum of the fiscal year requirements for aircraft power supply cable assemblies of each military facility from industries established pursuant to title 18, United States Code: *Provided*, That the restriction contained herein shall not apply to small purchases in amounts not exceeding \$10,000.

Sec. 791. None of the funds appropriated by this Act shall be used to purchase dogs or cats or otherwise fund the use of dogs or cats for the purpose of training Department of Defense students or other personnel in surgical or other medical treatment of wounds produced by any type of weapon: *Provided*, That the standards of such training with respect to the treatment of animals shall adhere to the Federal Animal Welfare Law and to those prevailing in the civilian medical community.

Sec. 792. Beginning on April 1, 1984, or on the effective date of the next adjustment in the General Schedule of compensation for Federal classified employees, whichever occurs first, none of the funds appropriated by this Act shall be available to pay Variable Housing Allowance to a member pursuant to section 403(a), title 37, United States Code, in an amount that exceeds the difference between \$800 and the amount of Basic Allowance for Quarters such member receives pursuant to section 403, title 37, United States Code, in the case of members with dependents, or the difference between \$600 and the amount of Basic Allowance for Quarters such member receives pursuant to section 403, title 37, United States Code, in the case of a member without dependents.

Sec. 793. The land and building located on the parcel described as lot four (4), block four (4), Fairbanks Original Townsite, section 10 townsite 1 south, range 1 west, Fairbanks meridian, shall be transferred to the city of Fairbanks.

Sec. 794. (a) Except as otherwise provided in this section, none of the funds appropriated by this or any other Act may be obligated or expended for the procurement of a weapon system unless the prime

contractor or other contractors for such system provides the United States with written guarantees—

(1) that the system and each component thereof were designed and manufactured so as to conform to the Government's performance requirements as specifically delineated (A) in the production contract, or (B) in any other agreement relating to the production of such system entered into by the United States and the contractor;

(2) that the system and each component thereof, at the time they are provided to the United States, are free from all defects (in materials and workmanship) which would cause the system to fail to conform to the Government's performance requirements as specifically delineated (A) in the production contract, or (B) in any other agreement relating to the production of such system entered into by the United States and the contractor; and

(3) that, in the event of a failure of the weapon system or a component to meet the conditions specified in clauses (1) and (2)—

(A) the contractor will bear the cost of all work promptly to repair or replace such parts as are necessary to achieve the required performance requirements; or

(B) if the contractor fails to repair or replace such parts promptly, as determined by the Secretary of Defense, the contractor will pay the costs incurred by the United States in procuring such parts from another source.

(b) A written guarantee provided pursuant to subsection (a) shall not apply in the case of any weapon system or component thereof which has been furnished by the Government to a contractor.

(c) The Secretary of Defense may waive the requirements of subsection (a) in the case of a weapon system if the Secretary—

(1) determines that the waiver is necessary in the interest of the national defense or would not be cost-effective; and

(2) notifies the Committees on Armed Services and Appropriations of the Senate and the House of Representatives in writing of his intention to waive such requirements with respect to such weapon system and includes in the notice an explanation of the reasons for the waiver.

(d) The requirements for written guarantees provided in subsection (a) hereof shall apply only to contracts which are awarded after the date of enactment of this Act and shall not cover combat damage.

SEC. 795. None of the funds appropriated by this Act shall be obligated under the competitive rate program of the Department of Defense for the transportation of household goods to or from Alaska and Hawaii.

SEC. 796. No funds appropriated for the Departments of Defense, Army, Navy, or the Air Force shall be obligated by their respective Secretaries for architectural and engineering services and construction design contracts for Military Construction projects in the amount of \$85,000 and over, unless competition for such contracts is open to all firms regardless of size in accordance with 40 U.S.C. §541, et seq.

SEC. 797. None of the funds made available by this Act shall be used to initiate full-scale engineering development of any major defense acquisition program until the Secretary of Defense has

APPENDIX B

DRAFT GUIDANCE ON WRITTEN GUARANTEES

2502

Federal Register / Vol. 49, No. 14 / Friday, January 20, 1984 / Notices

1983 (48 FR 55807), and December 30, 1983 (48 FR 57584).

Revised I. Levin,

Acting Chairman, Committee for the Implementation of Textile Agreements,
January 17, 1984.

Committee for the Implementation of Textile Agreements

Commissioner of Customs,
Department of the Treasury, Washington,
D.C.

Dear Mr. Commissioner: Under the terms of Section 204 of the Agricultural Act of 1954, as amended (U.S.C. 1684), pursuant to the Bilateral Cotton, Wool, and Man-Made Fiber Textile Agreement of August 13, 1983, between the Governments of the United States and the People's Republic of China and in accordance with the provisions of Executive Order 11691 of March 3, 1972, as amended, you are directed to prohibit, effective on January 20, 1984, entry into the United States for consumption and withdrawal from warehouses for consumption of cotton textile products in Category 352, produced or manufactured in the People's Republic of China and exported during the twelve-month period beginning on January 20, 1984 and extending through January 19, 1985, in excess of 738,700 yards.

Textile products in Category 352 which have been exported to the United States during the ninety-day period which began on October 22, 1983 shall be subject to this directive.

A description of the textile categories in terms of T.S.U.S.A. numbers was published in the Federal Register on December 13, 1983 (48 FR 55709), as amended on April 7, 1984 (48 FR 15175), May 3, 1983 (48 FR 16884), December 14, 1983 (48 FR 55807), and December 20, 1983 (48 FR 57584).

In carrying out the above directions, the Commissioner of Customs should ensure entry into the United States for consumption to include entry for consumption into the Commonwealth of Puerto Rico.

The action taken with respect to the Government of the People's Republic of China and with respect to imports of cotton textile products from China has been determined by the Committee for the Implementation of Textile Agreements to involve foreign affairs functions of the United States. Therefore, those directions to the Commissioner of Customs, which are necessary for the implementation of such actions, fall within the foreign affairs exception to the rule-making provisions of 5 U.S.C. 553. This letter will be published in the Federal Register.

Sincerely,

Revised I. Levin,

Acting Chairman, Committee for the Implementation of Textile Agreements.

(FR Doc. 84-1389 Filed 1-19-84; 845 441)
GILLIES CODE 2510-09-01

*The level has not been adjusted to account for any imports exported before January 20, 1984.

COMMITTEE FOR PURCHASE FROM THE BLIND AND OTHER SEVERELY HANDICAPPED

Addition to Procurement List

SUMMARY: This action adds to Procurement List 1984 a commodity to be produced by workshops for the blind and other severely handicapped.

EFFECTIVE DATE: January 20, 1984.

ADDRESS: Committee for Purchase from the Blind and Other Severely Handicapped, Crystal Square 1, Suite 1107, 1755 Jefferson Davis Highway, Arlington, Virginia 22202.

FOR FURTHER INFORMATION CONTACT: C. W. Fletcher, (703) 557-1145.

SUPPLEMENTARY INFORMATION: On August 5, 1983, the Committee for Purchase from the Blind and Other Severely Handicapped published a notice (48 FR 35886) of proposed addition to Procurement List 1984, October 18, 1983 (48 FR 48415).

After consideration of the relevant matter presented, the Committee has determined that the commodity listed below is suitable for procurement by the Federal Government under 41 U.S.C. 48-48c, 88 Stat. 77.

I certify that the following action will not have a significant impact on a substantial number of small entities. The major factors considered were:

a. The action will not result in any additional reporting, recordkeeping or other compliance requirements.

b. The action will not have a serious economic impact on any contractor for the commodity listed.

c. The action will result in authorizing small entities to produce a commodity procured by the Government.

Accordingly, the following commodity is hereby added to Procurement List 1984:

Class 7230
Sheet, Bed, Disposable; 7230-00-138-6578
C. W. Fletcher,

Executive Director.

(FR Doc. 84-1389 Filed 1-19-84; 845 441)
GILLIES CODE 6820-25-01

Proposed Additions to Procurement List

SUMMARY: The Committee has received proposals to add to Procurement List 1984 commodities to be produced by and services to be provided by workshops for the blind and other severely handicapped.

Comments Must Be Received on or Before February 22, 1984.

ADDRESS: Committee for Purchase from the Blind and Other Severely

Handicapped, Crystal Square 1, Suite 1107, 1755 Jefferson Davis Highway, Arlington, Virginia 22202.

FOR FURTHER INFORMATION CONTACT: C. W. Fletcher, (703) 557-1145.

SUPPLEMENTARY INFORMATION: This notice is published pursuant to 41 U.S.C. 47(a)(2), 85 Stat. 77. Its purpose is to provide interested persons an opportunity to submit comments on the possible impact of the proposed action.

If the Committee approves the proposed additions, all entities of the Federal Government will be required to procure the commodities and services listed below from workshops for the blind or other severely handicapped.

It is proposed to add the following commodities and services to Procurement List 1984, October 18, 1983 (48 FR 48415):

Class 2640

KA Deep Water Fending; 2640-00-780-0844

Class 6888

Slippers, Convalescent Patient's; 6832-00-078-7888, 6832-00-078-7908, 6832-00-078-7904, 6832-00-341-4888, 6832-00-078-7794

Class 7818

Medal, Award Certificate; 7818-00-755-7077

Class 8115

Box Shipping; 8115-01-088-3730

BIC 6988

Grounds Maintenance, Federal Center; 620

Central Avenue, Alameda, California

Grounds Maintenance, U.S. Court of Appeals,

7th and Mission Streets, San Francisco,

California

C. W. Fletcher,

Executive Director.

(FR Doc. 84-1389 Filed 1-19-84; 845 441)

GILLIES CODE 6820-25-01

DEPARTMENT OF DEFENSE

Office of the Secretary

Draft Guidance on Written Guarantees

ASSISTANT: Office of the Secretary, DOD.

ACTION:

SUMMARY: By this notice, the Department of Defense seeks written comments on proposed guidance to implement section 794 of the Department of Defense Appropriations Act, 1984 (Pub. L. 98-212), which provides that no funds may be obligated or expended for the procurement of a weapon system unless the contractors for such system provide certain written guarantees to the United States. The proposed guidance provides specific direction to heads of DOD Components with respect to DOD policy and

procedures, developed as a result of Section 794, for requiring and obtaining such guarantees at the weapon system or Component level or both in connection with the procurement of weapon systems by the Department of Defense.

DATE: Written comments must be received by February 12, 1984.

ADDRESS: Office of the Deputy Under Secretary of Defense for Research and Engineering (Acquisition Management), The Pentagon, Room 2A330, Washington, D.C. 20301.

FOR FURTHER INFORMATION CONTACT: Mr. Ron Bulmer, (202) 695-4235.

SUPPLEMENTARY INFORMATION: Development of guidance to meet the statutory requirements of section 794 has required revision of, or tradeoffs between a number of fundamental procurement policies. Our practice of applying warranties when appropriate in competitive firm fixed price type contracts has been modified by the statutory requirement to include guarantees in all procurements that qualify regardless of whether competitive or not and regardless of contract type. Section 794 requires acquisition of guarantees for weapon systems which reverses long standing DOD policy of using warranties selectively at the subsystem and Component level rather than the systems level.

Implementation of section 794, a copy of which is reproduced below, is anticipated to require increased surveillance and enforcement of guarantee provisions by contract administration facilities both within the government and within industry. Since there will be significant assumption of risk by defense prime contractors as a result of this statute, in all probability, greater risks will have to be shared by subcontractors and vendors.

Sec. 794. (a) Except as otherwise provided in this section, none of the funds appropriated by this or any other Act may be obligated or expended for the procurement of a weapon system unless the prime contractor or other contractors for such system provides the United States with written guarantees—

(1) that the system and each component thereof were designed and manufactured so as to conform to the Government's performance requirements as specifically delineated (A) in the production contract, or (B) in any other agreement relating to the production of such system entered into by the United States and the contractor;

(2) that the system and each component thereof, at the time they are provided to the United States, are free from all defects (in materials and workmanship) which would cause the system to fail to conform to the Government's performance requirements as specifically delineated (A) in the production contract, or (B) in any other agreement relating to the production of such system entered into by the United States and the contractor; and

(3) that, in the event of a failure of the weapon system or a component to meet the conditions specified in clauses (1) and (2)—

(A) the contractor will bear the cost of all work promptly to repair or replace such parts as are necessary to achieve the required performance requirements; or

(B) if the contractor fails to repair or replace such parts promptly, as determined by the Secretary of Defense, the contractor will pay the costs incurred by the United States in procuring such parts from another source.

(b) A written guarantee provided pursuant to subsection (a) shall not apply in the case of any weapon system or component thereof which has been furnished by the Government to a contractor.

(c) The Secretary of Defense may waive the requirements of subsection (a) in the case of weapon system if the Secretary—

(1) determines that the waiver is necessary in the interest of the national defense or would not be cost-effective; and

(2) notifies the Committee on Armed Services and Appropriations of the Senate and the House of Representatives in writing of his intention to waive such requirements with respect to such weapon system and includes in the notice an explanation of the reasons for the waiver.

(d) The requirements for written guarantees provided in subsection (a) hereof shall apply only to contracts which are awarded after the date of enactment of this Act and shall not cover combat damage.

Policy Guidance

Section 794 of the Department of Defense Appropriations Act, 1984 requires that written guarantees be obtained in connection with the procurement of weapon systems. This guidance is issued to provide for implementation of section 794. It sets forth the policy and procedures for requiring and obtaining such guarantees at the weapon system and/or component level.

1. Definitions

For purposes of this guidance:

(a) "Weapon System" is equipment which, without substantial modification, is or can be used directly by armed forces to carry out combat missions. By way of illustration, the term includes bombers, fighter aircraft, attack helicopters, combat naval vessels, strategic and tactical missiles, tanks, combat vehicles, small arms, torpedoes, bombs and artillery. The term includes software, ordnance, related support equipment, such as ground handling, equipment, training devices, test equipment, and their accessories.

(b) A "component" is an assembly or any combination of parts, subassemblies, and assemblies mounted together in manufacture, assembly, maintenance, or rebuild. Spare parts, per se, are not deemed components unless otherwise fitting this definition.

(c) A "procurement" is a direct contract between the government and a contractor for the production of a weapon system and/or components thereof, *irrespective of contract type*.

(d) A "specified performance requirement" is any specifically delineated mandatory performance requirement set forth *anywhere* in a government production contract for a weapon system or in any other agreement relating to the production of such system incorporated or referenced in such contract.

(e) "Conform" means designed and manufactured so as to meet or achieve, or both, the government's specified performance requirement.

(f) "Bear the cost of" means at no increase in contract price irrespective of contract type. The written guarantees set forth in a contract award for the production of a weapon system shall be a *separately priced firm fixed price line item*.

(g) "At no cost to the government" means that the costs will not be reimbursed the contractor directly or indirectly under the production contract for the weapon system or any other government contract (except for the firm fixed price guarantee line item).

2. This guidance applies only to contract awards made after March 14, 1984.

For purposes of this guidance:

(a) A modification to a contract to add additional quantities constitutes a contract award.

(b) The exercise of a priced production option even when no further definition or negotiation of terms is required constitutes a contract award.

(c) The notice to proceed with quantities after the first year quantity in a multi-year procurement *does not* constitute a contract award.

(d) The placement of an order under a basic agreement or basic ordering agreement constitutes a contract award.

(e) The definitization of an existing redeterminable contract *does not* constitute a new award.

(f) The definitization of a letter contract constitutes a contract award.

3. Except to the extent otherwise provided herein, all government contracts for the production of a weapon system or components thereof shall contain a clause:

(a) Guaranteeing that the weapon system and each component thereof were designed and manufactured so as to conform to the government's specified performance requirements and that, at the time of delivery to the government, the weapon system and each component thereof are free from such defects in materials and workmanship as would cause the system to fail to conform to

the government's specified performance requirements delineated in the contract.

(b) Guaranteeing that the contractor will bear the cost of all work promptly to repair or replace such parts as are necessary to achieve the required performance requirements and providing that if the contractor fails to repair or replace parts promptly as required by the contract, the contractor will reimburse the government for any cost incurred by the government in procuring such parts from another source.

4. A model clause that may be used for this purpose in contracts for less complex weapon systems is attached. For complex systems, when different types of requirements (see paragraph 5) are present, special guarantee clauses may be written.

5. The written guarantees called for herein pertaining to design and manufacture so as to conform to the government's specified performance requirements will generally be of either or both of two types:

(a) When the specified performance requirement(s) is a test or demonstration and the requirement(s) is deemed to be satisfied upon the satisfactory completion of the specified test or demonstration, for example, of a first prototype or production unit, the guarantee shall provide that, in the event of a failure of a weapon system or component to complete satisfactorily the specified test or demonstration, the contractor shall perform promptly all design and manufacture work as necessary to conform to the government's specified performance requirements at no increase in contract price and at no cost to the government and to complete satisfactorily the specified test or demonstration at no increase in contract price.

(b) When the specified performance requirement(s) consists of the operation of the system without designated failures for a specified period or interval, the guarantee shall, at a minimum, provide that, in the event of a failure of a weapon system or component thereof within the stipulated period to meet the designated performance requirement(s), the contractor shall promptly, at no increase in contract price and at no cost to the government, perform all work to (1) design and manufacture the system and each component thereof so as to conform to the government's specified performance requirements as specifically delineated and/or (2) repair and/or replace such parts as necessary, to meet the designated performance requirement at no increase in contract price and at no cost to the government.

6. In contracts for weapon systems, however, there are two types of guarantees: One for performance to insure conformity of design and manufacture to specifically delineated performance requirements (as set forth above); and, one for freedom from all defects in materials and workmanship which would cause the system not to achieve the specified performance requirements. The latter is a separate and distinct guarantee provision which would attach to all delivered end items under the weapon system contract for a specified period of time. These guarantees are not mutually exclusive and both will be contained within a single contract for a weapon system or components thereof.

7. Consistent with the policy stated in DAR 1-324, the contract may provide such additional warranty protection and remedies thereof as may be deemed appropriate by the government in the circumstances.

8. The duration of the written guarantee shall be tailored, as appropriate, to the specific contract award. The duration of the written guarantee(s) within any given contract award need not be the same for all specified performance requirements.

9. Payment for the written guarantee shall be made on a pro-rata basis at time of delivery of the contract end items covered by the guarantee.

10. During negotiation of a proposed contract, care must be taken to identify firm and/or prescribed performance requirements that have been included in the specifications and other relevant documents in order to avoid later dispute. These performance requirements should be reviewed to assure that they are realistic and achievable and that the performance requirements specified in the contract accurately reflect the needs for the weapon system. Unless otherwise indicated by the government, all specified performance requirements fall under the performance guarantee(s). If it should be determined that a written guarantee at the weapon system level is not cost-effective or otherwise not in the interest of the national defense, the identification and examination of appropriate components of the weapon system for applicability of a written guarantee(s) is also required. This examination should include a review of individual performance parameters (such as durability) for application of a written guarantee if comprehensive coverage is determined to be infeasible.

11. During negotiation of the contract, each circumstance(s) that could have the effect of voiding the guarantee should be identified and specifically

delineated in the contract. For example, if the guarantee would be voided, in whole or in part, by the subsequent incorporation of spare parts that were not predetermined to be a duplicate of the replaced part, this should be the subject of negotiation. Contracting officers should not agree that any circumstance(s) will void the guarantee unless the relationship between the circumstance(s) and the performance requirements is direct and the circumstance(s) identified as voiding the warranty is beyond the control of and not attributable to any fault of the contractor.

12. The firm fixed price of the guarantee(s) should be identified separately. In order to facilitate the identification of the cost of the guarantee, it shall be set forth in the contract as a separate line item.

(a) In determining whether use of a guarantee is cost effective to the government, the benefits to be derived from the guarantee must be related to the costs of the guarantee to the government. Guarantee costs arise from the contractor's charge for accepting the deferred liability created by the guarantee and from the government's administration and enforcement of the guarantee. In most cases, contractors will quote a higher price to provide the guarantee. Competition will be a major factor in the price quoted by the contractor to the government for the guarantee. In addition, the experience of the contractor in producing the item is another major factor in the cost of the guarantee since it may rely on an actuarial basis to assess financial risk. As a further consideration, the estimated cost to the government for correction or replacement by the contractor, by another source, or by the government, in the absence of a guarantee, should be compared to the guarantee costs considered above.

(b) There are other factors which must be considered in determining whether the guarantee is cost effective such as any indirect costs to the Government necessary to maintain the guarantee in effect. For example, if certain spare parts must be purchased only from designated suppliers in order to keep the guarantee in effect, the estimate of the loss to the government attributable to this limitation on competition should be estimated. By way of a second example, the effect on breakout and competitive procurement of weapon system components should be considered.

13. The waiver authority granted in Subsection 794(c) is hereby delegated to the Secretaries of the Army, Navy, and Air Force and to the Directors of

Defense Agencies with authority to redelegate not below the level of the Vice or Assistant Commander of a Major Command or the Assistant Director of a Defense Agency. Class waivers for specific programs may be granted, when justified. Class waivers may not be approved below the level of the Assistant Secretary of the Military Department or the Director of a Defense Agency. A written record will be kept of each waiver granted, together with supporting documentation, to meet the reporting requirements to the Congress. A waiver of the guarantee requirements in whole or in part set forth above must be:

(a) Supported by a written determination that the waiver is necessary in the interest of the national defense or would not be cost-effective.

(b) An intention to waive such requirements must be forwarded to the committees on Armed Services and Appropriations of the Senate and the House of Representatives in writing, including in the notice an explanation of the reasons for the waiver(s).

(c) Notification of all class waivers will be sent to the DoD Acquisition Executive.

14. This guidance is effective immediately.

Guarantee

(a) Notwithstanding inspection and acceptance by the government of supplies furnished under this contract or any provision of this contract concerning the conclusiveness thereof, the contractor guarantees:

(1) That line item — and each component thereof are designed and manufactured so as to conform to the performance requirements of this contract and all other supplementary agreements relating to the production under this contract of line item — entered into by the United States and the contractor, and

(2) That line item — and each component thereof, at the time of delivery, are free from all defects in materials and workmanship which would cause the line item to fail to conform to the performance requirements of this contract and all other supplementary agreements relating to the production under this contract of line item — entered into by the United States and the contractor provided, however, that with respect to government-furnished property the contractor's guarantee shall extend only to its proper installation so as not to degrade its performance and/or reliability, unless the contractor performs some modifications or other work on such property, in which case the contractor's warranty shall extend to such modification or other work.

(b) In the event of a failure of line item — to meet the conditions specified in subparagraphs (a)(1) or (a)(2) above:

(1) The contractor will promptly repair or replace such parts as are necessary to achieve the required performance

requirements and the contractor shall bear all costs in connection therewith, or

(2) If the contractor fails to repair or replace such parts promptly, as determined by the contracting officer, the contractor will pay the costs incurred by the government in procuring such parts from another source and in accomplishing the repair.

(c) The contractor will also prepare and furnish to the government data and reports applicable to any correction required under this clause (including revision and updating of all affected data called for under this contract) at no increase in contract price or cost to the government.

(d) When items covered under the guarantee are returned to the contractor, in pursuance to this clause, the contractor will bear the transportation costs from the place of delivery specified in the contract (irrespective of the f.o.b. point or point of acceptance) to the contractor's plant and return.

(e) If the government determines that it does not require repair or replacement of defective or nonconforming supplies, the government shall be entitled to an equitable adjustment in the price of such supplies.

(f) The contractor shall be notified in writing of any failure of line item — or any component thereof subject to the guarantee set forth in paragraph (a) above within — days after discovery of the failure. Upon election by the government of a remedy in accordance with paragraph (b) or (c) above, the contractor will, notwithstanding any disagreement regarding the guarantee, comply with such direction. In the event it is later determined that the failure was not subject to the guarantee set forth in paragraph (a) above, the contract price will be equitably adjusted.

(g) The guarantee provisions of this clause do not apply to combat damage.

(h) For purposes of this clause, the term "performance requirements" means only those performance characteristics that are mandatory. The term "performance requirements" does not include performance characteristics that are described as goals or objectives.

(i) The rights and remedies of the Government provided in this clause are in addition to, and do not limit, any rights the government may have under any other clause of the contract. Disputes arising under this clause will be resolved in accordance with the clause of this contract entitled Disputes.

Dated: January 17, 1984.

M. S. Healy,
OSD Federal Register Liaison Officer,
Department of Defense.

(FR Doc. 84-1028 Filed 1-19-84; 2:45 pm)
BILLING CODE 5010-01-01

Department of The Air Force

Intent To Prepare a Draft Environmental Impact Statement (EIS)

The National Guard Bureau proposes to relocate the 146 Tactical Airlift Wing with its 16 C-130E's from Van Nuys Airport to NAS Ft. Meigs, CA.

With 500 general aviation aircraft based at Van Nuys and over a half million annual operations, air traffic and flying safety are primary reasons for the move. The 146 TAW already accomplishes its traffic pattern and instrument training at other airfields having fewer aircraft movements. The 146 TAW is currently limited to initial takeoff and full stop landing at Van Nuys.

The National Guard Bureau has completed a preliminary survey for candidate sites. Two alternate location sites are Norton AFB, San Bernardino County and Air Force Plant No. 42, Palmdale, Los Angeles County. There will be no change in the number of military and civilian personnel employed.

The environmental analysis will cover such topics as prime and unique farmlands, floodplains, wetlands, noise, air quality, water quality, biotic communities, compatible land use, and socioeconomic impact.

Participation in the environmental analysis process by interested federal, state, and local agencies, as well as interested private organizations and individuals, is invited. Public meetings will be held in early March 1984 to review the proposed action and facilitate public involvement in the environmental analysis. Exact time and place of meetings will be announced in the local news media.

It is estimated the draft EIS will be available for public review and comment in August 1984. Questions concerning the proposal, public meeting(s) and EIS may be directed to Mr. Don Williams, ANSC/DEV, Andrews AFB, MD 20331, (301) 981-0693. Winibald F. Holmes,

Air Force Federal Register Liaison Officer.

(FR Doc. 84-1028 Filed 1-19-84; 2:45 pm)
BILLING CODE 5010-01-01

Department of the Army, Corps of Engineers

Intent To Prepare a Draft Environmental Impact Statement (DEIS) for Department of the Army Permit To Construct a Peat Processing Plant in Milford and Bradley, Maine

AGENCY: Army Corps of Engineers, DOD, New England Division.

ACTION: Notice of intent to prepare a draft environmental impact statement.

SUMMARY: 1. The New England Division of the Corps of Engineers will be reviewing an application to be made by Signal Cleanuels, Inc. of Hampton, New

APPENDIX B

FY85 DEFENSE AUTHORIZATION ACT

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1 recommended quantity.".

2 (b) The amendment made by subsection (a) shall take
3 effect at the end of the 180-day period beginning on the date
4 of the enactment of this Act.

5 Additional Miscellaneous Procurement Provisions

6 Sec. 1234. (a) Chapter 141 of title 13, United States
7 Code, is amended by adding at the end thereof the following
8 new sections:

9 "§2432. Prohibition of contractors limiting subcontractor
10 sales directly to the United States

11 "(a) Each contract for the purchase of supplies or
12 services made by the Department of Defense shall provide that
13 the contractor will not--

14 "(1) enter into any agreement with a subcontractor
15 under the contract that has the effect of unreasonably
16 restricting sales by the subcontractor directly to the
17 United States of any item or process (including computer
18 software) made or furnished by the subcontractor under
19 the contract (or any follow-on production contract); or

20 "(2) otherwise act to restrict unreasonably the
21 ability of a subcontractor to make sales to the United
22 States described in clause (1).

23 "(c) This section does not prohibit a contractor from
24 asserting rights it otherwise has under law.

25 "§2433. Major weapon systems: contractor guarantees

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"(a) In this section:

"(1) 'Weapon system' means items that can be used directly by the armed forces to carry out combat missions and that cost more than \$100,000 or for which the eventual total procurement cost is more than \$10,000,000. Such term does not include commercial items sold in substantial quantities to the general public.

"(2) 'Prime contractor' means a party that enters into an agreement directly with the United States to furnish part or all of a weapon system.

"(3) 'Design and manufacturing requirements' means structural and engineering plans and manufacturing particulars, including precise measurements, tolerances, materials, and finished product tests for the weapon system being produced.

"(4) 'Essential performance requirements', with respect to a weapon system, means the operating capabilities or maintenance and reliability characteristics of the system that are determined by the Secretary of Defense to be necessary for the system to fulfill the military requirement for which the system is designed.

"(5) 'Component' means any constituent element of a weapon system.

"(6) 'Mature full-scale production' means the

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1 manufacture of all units of a weapon system after the
2 manufacture of the first one-tenth of the eventual total
3 production or the initial production quantity of such
4 system, whichever is less.

5 "(7) 'Initial production quantity' means the number
6 of units of a weapon system contracted for in the first
7 year of full-scale production.

8 "(8) 'Head of an agency' has the meaning given that
9 term in section 2362 of this title.

10 "(9) Except as otherwise provided in this section, the
11 head of an agency may not after January 1, 1965, enter into a
12 contract for the production of a weapon system unless each
13 prime contractor for the system provides the United States
14 with written guarantees that--

15 "(1) the item provided under the contract will
16 conform to the design and manufacturing requirements
17 specifically delineated in the production contract (or in
18 any amendment to that contract);

19 "(2) the item provided under the contract, at the
20 time it is delivered to the United States, will be free
21 from all defects in materials and workmanship;

22 "(3) the item provided under the contract will
23 conform to the essential performance requirements of the
24 item as specifically delineated in the production
25 contract (or in any amendment to that contract); and

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1 "(4) If the item provided under the contract fails
2 to meet the guarantee specified in clause (1), (2), or
3 (3), the contractor will at the election of the Secretary
4 of Defense or as otherwise provided in the contract--

5 " "(A) promptly take such corrective action as may
6 be necessary to correct the failure at no additional
7 cost to the United States; or

8 " "(B) pay costs reasonably incurred by the United
9 States in taking such corrective action.

12 "(c) The head of the agency concerned may not require
11 guarantees under subsection (b) from a prime contractor for a
12 weapon system, or for a component of a weapon system, that is
13 furnished by the United States to the contractor.

14 "(d) Subject to subsection (e)(1), the Secretary of
15 Defense may waive part or all of subsection (b) in the case
16 of a weapon system, or component of a weapon system, if the
17 Secretary determines--

18 " "(1) that the waiver is necessary in the interest of
19 national defense; or

20 " "(2) that a guarantee under that subsection would
21 not be cost-effective.

22 The Secretary may not delegate authority under this
23 subsection to any person who holds a position below the level
24 of Assistant Secretary of Defense or Assistant Secretary of a
25 military department.

1 "(a)(1) Before making a waiver under subsection (1) with
 2 respect to a weapon system that is a major defense
 3 acquisition program for the purpose of section 139a of this
 4 title, the Secretary of Defense shall notify the Committees
 5 on Armed Services and on Appropriations of the Senate and
 6 House of Representatives in writing of his intention to waive
 7 any or all of the requirements of subsection (b) with respect
 8 to that system and shall include in the notice an explanation
 9 of the reasons for the waiver.

10 "(2) Not later than February 1 of each year, the
 11 Secretary of Defense shall submit to the committees specified
 12 in paragraph (1) a report identifying each waiver made under
 13 subsection (a) during the preceding calendar year for a
 14 weapon system that is not a major defense acquisition program
 15 for the purpose of section 139a of this title and shall
 16 include in the report an explanation of the reasons for the
 17 waivers.

18 "(f) The requirement for a guarantee under subsection
 19 (b)(3) applies only in the case of a contract for a weapon
 20 system that is in mature full-scale production. However,
 21 nothing in this section prohibits the head of the agency
 22 concerned from negotiating a guarantee similar to the
 23 guarantee described in that subsection for a weapon system
 24 not yet in mature full-scale production. When a contract for
 25 a weapon system not yet in mature full-scale production is

1 not to include the full guarantee described in subsection
2 (c)(3) the Secretary shall comply with the notice
3 requirements of subsection (e).

4 "(g) Nothing in this section prohibits the head of the
5 agency concerned from--

6 "(1) negotiating the specific details of a
7 guarantee, including reasonable exclusions, limitations
8 and time duration, so long as the negotiated guarantee is
9 consistent with the general requirements of this section;

10 "(2) requiring that components of a weapon system
11 furnished by the United States to a contractor be
12 properly installed so as not to invalidate any warranty
13 or guarantee provided by the manufacturer of such
14 component to the United States;

15 "(3) reducing the price of any contract for a weapon
16 system or other defense equipment to take account of any
17 payment due from a contractor pursuant to subclause (3)
18 of subsection (c)(3);

19 "(4) in the case of a dual source procurement,
20 exempting from the requirements of subsection (c)(1) an
21 amount of production by the second source contractor
22 equivalent to the first one-tenth of the eventual total
23 production by the second source contractor; and

24 "(5) using written guarantees to a greater extent
25 than required by this section, including guarantees that

1 exceed those in clauses (1), (2), and (3) of subsection
2 (c) and guarantees that provide more comprehensive
3 remedies than the remedies specified under clause (4) of
4 that subsection.

5 "(h)(1) The Secretary of Defense shall prescribe such
6 regulations as may be necessary to carry out this section.

7 "(2) This section does not apply to the Coast Guard or
8 to the National Aeronautics and Space Administration.

9 "\$2424. Acquisition of petroleum: authority to waive
10 contract procedures

11 "(a) The Secretary of Defense may, for any purchase of
12 petroleum, waive the application of any provision of law
13 prescribing procedures to be followed in the formation of
14 contracts, prescribing terms and conditions to be included in
15 contracts, or regulating the performance of contracts if the
16 Secretary determines--

17 "(1) that petroleum market conditions have adversely
18 affected (or will in the near future adversely affect)
19 the acquisition of petroleum by the Department of
20 Defense; and

21 "(2) the waiver will expedite or facilitate the
22 acquisition of petroleum for Government needs.

23 "(b) A waiver under subsection (a) may be made with
24 respect to a particular contract or with respect to classes
25 of contracts. Such a waiver that is applicable to a contract

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